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ORIGINAL ARTICLES.

THE SURGICAL TREATMENT OF IMPERFORATE HYMEN.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-Second Annual Meeting of the American Medical Association, held at Washington, D. C., May 5, 1891.

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In looking over the ordinary text-books in the hands of practitioners and students of the present day, you will find that the subject of imperforate hymen is passed over in most imperfect and unsatisfactory manner. By a strange coincidence, a professional colleague had asked my opinion regarding a case that died after operation for this condition, and in a day or two I was sent for by another physician to see the following case:

Mrs. F. H., æt. 20, seen July, 1890. Been married for sixteen months. Looked flushed. Has never menstruated. Suffers from spasmodic pains like labor pains. Was much worse last night than she has been yet. Her mother has been dead for some years, and she therefore refrained from consulting any one about herself. For four years she has felt pains like those experienced by her friends when they are unwell. They come on irregularly every two or three months. Has noticed a gradually increasing swelling over lower abdomen. The cramp-like pains have only come on recently. Would never permit her doctor to examine her, though after marriage she thought all was not right. Had difficulty in passing water. On examining the abdomen I felt what I took to be the uterus 1½ inch above the umbilicus, and readily diagnosed imperforate hymen with retained menses.

After telling the husband of the dangers of operation, and after removing her into the hospital, I passed in a trocar, then cut out a circular piece of the ¼-inch thick hymen, and before allowing much of the fluid to escape, inserted the nozzle of a syringe attached to a well elevated douche pail. In this way a large quantity of water was run in, until all the treacly discharge had been washed out, and with it large flakes of dead vaginal epithelium. While the cavity was still distended with fluid, I began to pack it full of iodoform gauze, and as the gauze was packed in the water of course came out. No pressure was allowed above on the abdomen. This was all done with the patient anæsthetized, so that I could work under the most favorable circumstances. I stitched with a continuous suture the mucous membrane on the internal and external surface of the hymen, so that the subsequent passage of gauze would be more readily accomplished. The cavity of the pelvis was thus filled with gauze. This was only removed and renewed every forty-eight hours. After each removal the parts were thoroughly douched. The parts below were covered with an absorbent antiseptic pad. The patient was kept in bed for two weeks, and was never allowed to sit up. There was no rise of pulse or temperature, and her pains were at once relieved. She was not allowed to do any work for one month, and was specially warned against straining or lifting.

A peep into the aforementioned text-books may make such details appear unnecessary, but the sad experience of my colleague with his case terminating fatally, as it did within a few blocks of the hospital during the same week, made me extremely cautious. The fatal case improved, and was allowed to sit up on the seventh or eighth day; sudden pain seized her and she developed symptoms of acute peritonitis. In a short time she was a corpse. This death impressed on my mind the necessity of following out two points in the treatment:

1. A replacement of the fluid by something that will be antiseptic, soft and unirritating, harmless, and that will afford good drainage and sufficient support.

2. That when sudden symptoms occur at a late period from sitting up, sudden straining, coughing, etc., the quicker the patient's abdomen is opened and drained the better. Such cases have tubes that have ruptured or leaked on account of a disturbance of their adhesions.

Such a treatment is to my mind an ideal one. The patient must be anæsthetized to carry it out. Her abdominal muscles will thus be relaxed, and the tension on the pent-up fluid will be lessened. The orifice in the hymen can be thoroughly dilated, and a small speculum can be introduced to

facilitate the washing out and the packing with gauze. If the gauze is put in as it should be, in one continuous strip, it can readily be removed.

Should the symptoms of sudden rupture of some adhesions of the tubes, or escape of fluid through the tubes set in, with peritonitis, I should at once open the abdomen and look for the source of the trouble. Dilated, diseased tubes should be removed, and the abdomen washed out. One must, however, distinguish between the symptoms that are due to a *septic* inflammation affecting vagina, uterus, tubes, ovaries and peritoneal cavity, ascending from below, and peritonitis due to ruptured adhesions or escape of fluid into the peritoneal cavity. In the septic cases the vagina becomes tender and thickened, the uterus enlarged, tender and soft, cervix swollen, and the whole uterus appears as it does just after a labor is terminated. These cases simulate the ordinary cases of septic fever subsequent to labor, or our puerperal fever. One such has been recorded by Sir J. Y. Simpson. In the other form of complication the symptoms are sudden in onset and follow some indiscretion. Opinion as to the best surgical procedure in these cases of imperforate hymen is probably even yet divided. These cases usually fall into the hands of the general practitioner, and he is called upon to relieve them. He should, therefore, be perfectly familiar with the dangers to be met and the best methods of avoiding them. Let him take to heart the warning of Sir J. Y. Simpson: "Beware of making light of such a case to the patient's friends, and beware above all of telling them that the operation you are about to undertake is either harmless or trivial."

Let him remember that Dr. Matthews Duncan advises that the patient should be kept in bed for three or four weeks after the operation, to avoid the increase of intra-abdominal pressure that accompanies the erect posture. Any one who is skeptical as to this pressure may readily satisfy himself by watching the changes in a column of water communicating with the bladder through a catheter, during the recumbent and then during the erect position.

In these cases Barnes, that best of gynecological writers, says: "A free external outlet would make it easier for the contracting uterus to expel its contents by this route, and thus take off pressure towards the tubes. On the other hand, the rapid retreat of the uterus would favor the laceration of the tubes if held back by adhesion. The balance of advantages and disadvantages of either plan is difficult to strike; and it is to be apprehended that cases will continue to occur in which a fatal result will follow any method of treatment." Barnes and Simpson give very sound and practical opinions on this subject. Simpson and Matthews Duncan advise against washing out the cavity, while Barnes says that he is not quite sure but that free incision and washing out is the best plan. Tait is in favor of washing out after free incision. He reports six cases done in this manner, and four done by the gradual method, without any fatal case. Emmet records four cases with four recoveries, but gives no details.

I have run through as much of the literature of this subject as I can command, and hoping that others may follow with more extensive lists, I have constructed a rough table of thirty-six cases with three deaths, a mortality of 8 per cent. The operation thus ranks with some of the most serious in surgery. I do not count the case of Thompson, where the condition was not discovered until after death from another cause, viz.: miliary tuberculosis. Four cases had subsequent severe peritonitis, to which two succumbed. Two had subsequent severe septicæmia, to which one succumbed. Again, to classify these differently, one died after free incision from peritonitis, produced by escape from the tubes. One died after free incision, washing out and apparent recovery, from some internal rupture and peritonitis. One died from septicæmia after the gradual method of evacuation, without washing out. One had severe peritonitis after the gradual method of evacuation, with recovery. One had severe peritonitis after the rapid method with washing out done twenty-four hours after, with recovery. One had severe septicæmia after the rapid method and washing out, with recovery.

Eight cases of the gradual method are recorded, against twenty-four of the rapid method.

In four cases the patients complained of dysuria. In three retention of urine was a prominent symptom. In one of the cases mentioned by myself a doctor was called in on a previous occasion, diagnosed retention of urine, and passed the catheter. The true condition was not recognized. This also happened in Drysdale's case.

Attention was usually called to the tumor when about the size of the gravid uterus at five months.

The effect of heredity is spoken of by Yates. He cites two cases occurring in two sisters and in two cousins of these two sisters. From what follows regarding the curious freaks of nature in his district, one concludes that it must be a curio-hunter's paradise, and the record loses weight.

But the strangest freak of all is to read in the "American System of Gynecology," that the prognosis is always favorable unless the patient has already had intra-pelvic hæmorrhage. I hope the writers of text-books will grant more than four and one-half lines to this subject. Cases are few and far between, and therefore our practitioners should be in possession of all the facts concerning them.

My ideas, then, as to the proper method of procedure, are as follows.

1. Warn the husband or friends of the danger of the operation.

2. Give the patient an anæsthetic.

3. Incise and tear the hymen freely.

4. Wash water in at once to take the place of and to wash out the blood and *débris*, and wash until the water comes out clear. Several quarts will be required.

TABLE OF OPERATIONS.

By Whom and Where Reported.	Number.	Retent. of Urine.	Method of Operative Procedure. Gradual	Rapid.	Incision Later.	Washed out at once.	Not washed out at once.	Recoveries.	Deaths	Complications.
Yates, London Lancet, June 11, 1870	1			Incision		1		1		
Davis, Medical Times and Gazette, Dec. 19, 1868	1			Free Incis.		1		1		Peritonitis.
Phillips, Medical Times and Gazette, Dec. 19, 1868	1			Free Incis.					1	Escape from tubes.
Hall, Medical Times and Gazette, Dec. 19, 1868	1			Free Incis.		1		1		
Copeman, Med. Times and Gazette, Dec. 19, 1868	1		1		in 8 days			1		Severe peritonitis.
Drysdale, Lancet, Dec. 11, 1869	1	1	1	Free open.		1		1		
A. Walker, N. Y. Obstet. Soc., June 3, 1884	1			1				1		None.
Watts, N. Y. Obstet. Soc., June 3, 1884	1	1		1				1		
Bigelow, Medical Record, December 15, 1888	1	Dysuria		1		1		1		
Walker, Chic. Med. Journal, 1878	1			1			1 abs.dress.	1		Miliary tuberculosis.
Reamy, Trans. Obstet. Soc., Cincinnati, Oct., 1888	1		*							
Jones, Trans. Obstet. Soc., Cincinnati, Oct., 1888	1			1		1	1 lotion.	1		
Thompson, Lancet, 1876	1									
Somers, Lancet, May 10, 1890	1			1				1		
Bailey, Bost. Med. and Surg. Jour., 1876	1	Dysuria	†	1		1		1		Epilepsy and septicæmia.
McCallum, Can. Med. Surg. Jour., Jan., 1880	1	Dysuria		1		1		1		
Glaister, Glas. Med. Jour., Nov., 1880	1			1			1	1		
Latimer, Brit. Med. Jour., June 28, 1884	1		1		in 6 days			11		Peritonitis.
Sykes, Brit. Med Jour., April 19, 1890	1	1		1		24 hrs. after		10		
Allinson, done in 1797 by Mr. Smith	10		4	6					1	Septicæmia.
Tait, Brit. Med. Jour., April 5, 1890	1		1					4		
J. Y. Simpson, Dis. of Women	4	Dysuria		1		1		1		Peritonitis 8-10 days after.
Emmet, Dis. of Women	1			1		1			1	
Russ, Dis. of Women	1									
Colleague's case										

* Not discovered until after death from tubercular meningitis. † Had opened previously and closed again.

5. Pack the cavity full of iodoform gauze. Use no compression on the abdomen.

6. Stitch the internal and external mucous surfaces of the hymen together.

7. Apply an antiseptic pad to the genitals.

8. Remove the gauze in forty-eight hours, wash out cavity, reapply gauze.

9. Keep the patient in the recumbent posture for two weeks, and in bed or on a sofa for a week or ten days longer.

10. If symptoms pointing to ruptured or leaky tube, with accompanying peritonitis, set in, open the abdomen, remove the cause of the peritonitis if possible, wash out the peritoneal cavity, and drain. To be successful this must be done early.

HYSTERORRHAPHY.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 5-8, 1891.

BY WM. RAWSON CHUNN, M.D.,

OF BALTIMORE, MD.

During the past few years, many things have been accomplished by the medical profession, having in view the prevention as well as the amelioration of suffering in mankind. I take pleasure in going a step farther, and doubt not that all rejoice with me when I say the same is true in regard to womankind. It is not necessary to mention by name all the advances in this direction, as time alone prevents, but by way of example we may say, without fear of contradiction, the barren woman is made to bring forth children, and she that had an issue of blood is healed of her infirmity. I need say no more by way of compliment, than that which was heretofore assumed to be miraculous is now nothing more than natural, and known to all. These results have been accomplished both by accident and design. Opportunity, quickness, manual dexterity and wealth, may be considered among accidental advantages. Out of these, however, proceed familiarity, confidence, experienced judgment, and last of all, design.

The histories and operations mentioned here are, to most of us, not at all novel or in any way startling. Although genius deserves, and sometimes obtains, credit for creating the brilliant and original, it is, fortunately, left for each member of the profession to try the experiment for himself; and thus, by the aggregate of individual effort, a true judgment is finally reached as to how much benefit is conferred upon humanity at large. Each one, then, has the right to give the result of his experiments, be they successful or otherwise, in order to make up this aggregate. For some time I had been looking out for a case where, in my judgment, it would be proper to attempt to cure a uterine displacement by fixation to the abdominal wall. It occurred to me, in order to prevent adverse criticism which might possibly be offered, that it would be well to select

a case where laparotomy was imperatively required otherwise than for the uterine malposition, such a case having hardly anything added to its gravity by the slight additional operation of fixing the uterus to the abdominal wall. It is here hardly necessary to state the various malpositions requiring the operation, except to mention posterior displacements, accompanied by persistent menorrhagia and metrorrhagia, continual miscarrying from retroflexion, distressing impaction of enlarged uteri in the pelvis, also not forgetting cases of decided prolapse and procidentia where the uterus descends between the thighs. About fifteen months ago, the case I had been looking for presented itself, and the following history was obtained: The patient was 28 years of age and unmarried, and had never been pregnant. For some two or three years past she had suffered greatly at her menstrual periods, and for nine months before I saw her she had been bleeding continuously. Of course, there were all sorts and kinds of pains in the pelvis. It was the bleeding principally, she wanted, however, to be cured of. Upon examination, the uterus was found enlarged and retroverted, and the ovaries could be distinctly felt, enlarged and tender, on each side. I considered Tait's operation would have to be done, but before resorting to the radical method, determined to dilate and explore the cavity of the uterus, and to use the curette, in hopes of relieving the neuralgia. This was accordingly performed, but resulted in no good, for the bleeding speedily returned, and was as bad as before the operation. I should say that it was impossible for the patient to wear a support, as the parts were entirely too sensitive to bear pressure. After some time had elapsed, and after the exhibition of the usual drugs with no change for the better, a day having been fixed for the operation, I repaired to the house of the patient and, with the assistance of Dr. E. M. Wise, Dr. L. E. Neale and others, prepared to take out the ovaries and tubes and stitch the uterus in the abdominal incision. The belly was laid open, and the tubes and ovaries were finally torn loose from their attachments and tied off on each side. Dr. Neale remarked that Tait's operation in this case was as justifiable as in any case he had ever seen. At this particular moment the patient ceased to respire, much to my discomfiture, and it was only by vigorous efforts that collapse was prevented. This accident, so to speak, "took my nerve," and instead of completing the operation after the manner of Kelly, by catching up the ovarian ligaments, I finished the operation by the following method. It is proper to state here, that the lower end of the abdominal wound was made as close down to the bladder as safety would permit. In stitching up this wound the first suture was introduced at the lower end of the incision, next the bladder, and then carried directly through the top of the fundus of the uterus, and out again through the opposite lip of the abdominal incision at a corresponding point. In other words, this suture was simply the suture nearest the bladder, and which also held the uterus in its new position. It closed the lowest part of the abdominal incision, and anteverted and brought forward the uterus. A thin, straight needle was used, and a stout thread was threaded directly in the eye of the needle. By this means the thread was more easily carried through the dense uterine tissue, and the suture being somewhat larger than the needle, made sufficient resistance to prevent cutting out. At the same time, the thickness of the thread filled completely the track of the needle, and consequently there was no hæmorrhage. This ligature was composed of Chinese twisted silk, and in size was about as large as that usually used to tie ovarian pedicles.

There being no evidence of hæmorrhage in the pelvis, the rest of the incision was closed in the usual way. Drainage was thought unadvisable, as a tube, if close to the fundus, might have a tendency to prevent secure attachment to the abdominal wall. A vaginal examination was made immediately after the operation, and the cervix was found far back in the hollow of the sacrum, the body of the uterus lying on top of the anterior wall of the vagina and fast to the bladder end of the parietal incision. The patient was put to bed and allowed to empty the bladder at will, without the use of a catheter. She received no medicine and had no bad symptoms. The bladder performed its function normally and without irritation, and I did not see her again until the sixth day after the operation. I then removed all the stitches, with the exception of the suture holding the uterus, and found good union all along the line. After fourteen days the uterine ligature was also removed, the uterus still remaining in good position. The woman got out of bed at the usual time and began to go about, a pessary having been introduced as a precautionary measure. The support was kept in position about one month. The menorrhagia and metrorrhagia ceased at the time of operation, and have not since returned. This operation was done a year ago last January, and I did not see my patient again until March, 1891, fourteen months after she was operated upon. About the middle of last March she returned to the city, and I examined her at my office. The uterus was then found in normal position, slightly anteverted, with an attachment to the abdominal wall, which was somewhat movable. The cervix was back in the hollow of the sacrum, and the fundus could be plainly felt above the anterior vaginal roof. The traces of the abdominal incision had almost entirely disappeared. Menorrhagia and metrorrhagia had been entirely absent since the opera-

tion. Pain and other pelvic symptoms had disappeared, and the woman seemed restored to her usual state of health. Although uterus and vagina were undergoing atrophic changes, sexual desire was still present as before the operation, and she was not averse to marriage, provided a suitable party should make proposals.

I was interested to find that in this instance, where the uterus was kept in place after the operation, atrophy had taken place, whereas in another case, operated upon with the uterus left in a state of retroflexion, atrophy had not taken place as late as two years after the operation.

A number of procedures have been instituted by medical men within the past few years for the cure of posterior displacements of the uterus. Some of these I think will be found useful, others will doubtless prove without avail and be cast aside. It always seemed to me important to eliminate from the field, as soon as possible, any operation unlikely to be attended with success, in order that as few patients as possible should run the risks, without some certainty of a satisfactory result. In this connection I may mention the method of passing a suture, or sutures, through both abdominal wall and uterus without doing laparotomy. For those who are not experts, this method may seem without difficulty and free from danger. In order, however, to raise the uterus sufficiently to make the fundus impinge against the abdominal parietes, so that the proper direction may be given to the suture, manipulation of considerable skill is necessary, and although no lives have as yet been lost, I do not think this operation is without danger. My friend, Dr. Howard Kelly, was the first, so far as I know, to try the above mentioned experiment, and he tried it right along in five cases, and after the ether, and it failed in every one. Now it strikes me that very few of us would have the courage to pursue such a course for such a length of time, and I feel like congratulating Dr. Kelly for eliminating from the field by his own efforts in such short order an operation destined to be of no benefit. It would be well if we could arrive at definite conclusions in regard to other operations with the same celerity. I should think the number of cases would be limited where the uterus could be stitched in place, without first opening the abdomen, retroflexion with adhesions in Douglas' culde-sac being a contraindication. It seems probable that some form of ventral fixation will in the future be the favorite means of treating the cases we are now considering, particularly as laparotomy is so many times imperative for other reasons. From the experience of others, as well as my own, I would not hesitate in any case to run a thread through the uterus and stitch it in the abdominal wound, where the abdomen had been opened on account of some more pressing emergency. I do not know what success has attended the efforts of other operators by the use of a single suture, but if a single suture proves sufficient, it is all I ever expect to use. Reasoning from analogy, however, we should not expect too much from the operation. Sometimes the uterine stump, when treated by the clamp, after hysterectomy, will after awhile sever its connection with the abdominal parietes, although in such cases the attachment is most intimate. In hysterorrhaphy, however, the fundus and greater part of the uterus being present, the attachments may not have so far to stretch.

It seems hardly probable that a succeeding pregnancy would in any way interfere with the new position of the uterus (provided the ovaries and tubes remained normal), except, in fact, to lift it still higher up, and throw it further forward. When, for example, we consider how enormously the round ligaments lengthen during the last months of pregnancy, I think it safe to conclude that we can count on the same behavior of the uterine attachments after hysterorrhaphy. It is not my purpose here to give a detailed account of the operations embraced under the body of this paper, as the procedures are well enough known by this time to merit description in recent publications on that branch. It seems, however, that the different forms of operation may be divided mainly into two classes: 1. Those forms of operation where the supporting suture is passed through the round ligament, broad ligament, or ovarian ligament, etc., and then tied to the abdominal parieties; and 2, where the supporting suture is passed directly through the fundus of the uterus. It would give me pleasure to hear the opinion of the Association as to which of these forms is likely to prove most beneficial—and no matter which way the verdict stands, I shall be equally well satisfied.

TREATMENT OF ECTOPIC GESTATION.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY E. E. MONTGOMERY, M.D.,
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While it is important in every class of disease to have definite ideas as to the methods of treatment, it is particularly so in the condition under consideration. The obscure character of the symptoms often presented, the difficulty of diagnosis, the grave lesions resulting from development and rupture, render such cases so important, that time devoted to their consideration, even though it may lead to frequent reiteration, is not time lost.

A fierce conflict has been waged during the last few years between the advocates of surgical procedure and those who favor palliative measures. The latter class, recognizing the dangers

of a surgical procedure which necessitates the opening of the abdominal cavity, the separation of vascular adhesions, and the increased avenues for septic infection, have endeavored to seek some way by which they may be averted. To accomplish this, the general methods of procedure have been the injection into the sac, or into the fetus, of material which will bring about its death through poisonous action; or the destruction of its life by the application of the electric current. The first method of procedure has been the injection into the sac of morphine, chloride of zinc, and other agents. This plan of treatment, however, has been attended with such unpleasant results as a rule, that it is not now generally practiced. The injection of the chloride of zinc, has, however, been recommended during the past year as being an efficient method of destroying life and preventing further discomfort from the presence of the mass. The tendency of the development of suppuration and of inflammation extending to the surrounding structures, is such as to preclude its use. The procedure very frequently results in conditions which necessitate subsequent operation when the patient is far less able to undergo it.

Electricity has still many persistant and able advocates, who regard it as perfectly efficient in destroying the life of the fetus. There are, without doubt, many well authenticated cases in which its use has resulted in the death of the embryo and the arrest of its subsequent development. This being the case, it will be asked, why should not electricity be the agent we use for the treatment of such cases, rather than subjecting the patient to an operation, which, without question, is attended with a certain amount of danger. In answering this question we have, necessarily, to consider the progress of ectopic pregnancy and the difficulties in its diagnosis. It must be remembered that there is nothing in the earlier stages of ectopic pregnancy that would lead the physician, or even the patient, to suppose that the pregnancy was other than a normal one, and it is only when symptoms of danger threaten, and either partial or entire rupture has taken place, that the patient becomes aware of the gravity of her condition, and feels it encumbent upon her to consult a physician.

Rupture of the sac in a tubal pregnancy may take place at any time between the third and thirteenth weeks. In the earlier periods the first premonition the patient may have will be a tearing pain in the side, followed by a sensation of faintness, possibly repeated attacks of faintness or even fainting, and all the symptoms of internal hæmorrhage. In such a case the physician has no time for tentative measures, but must resort to a radical procedure in order to save the life of the patient. We have no reason to believe that the death of the embryo in the fetal sac in any other portion of the tract would differ from that which takes place in the cavity of the uterus. Here, it is true, the fetus may die, may undergo the process of maceration and entirely disappear, but its envelope remains and may continue to retain its vitality for a number of months subsequently, before it is thrown off.

2. It is true the sac formed in the tube or ovary may not be so readily eliminated, but it remains an organized mass, which the organism of the patient must, sooner or later, be called upon to take care of, and hence it is likely to result in the development of trouble of such a character as ultimately to necessitate operative procedure for its removal.

3. Electricity, in cases in which the diagnosis is correct, is not an absolutely certain agent to destroy fetal life, but the embryo may continue to develop notwithstanding very strong currents of either galvanic or faradaic electricity have been used.

4. In many of the cases in which electricity has been used with a supposed successful result, it is doubtless true that the sac had already ruptured and the death of the fetus occurred, and the subsequent recovery of the patient was only the result of natural conditions, and not at all influenced by the application of the agent itself.

The writer was formerly an earnest advocate of electricity in the earlier stages of ectopic gestation, and in one case in which the diagnosis of extra-uterine pregnancy had been made, the faradaic current was repeatedly used without having any apparent influence upon the condition of the mass. Fearing to trust longer to such measures an operation was done, when it was found that the sac had ruptured, evidently before the electricity had been applied at all, and that we had an encysted mass in the pelvis, filled up with clot and debris of the embryonic development. In this patient the ovaries and tubes were removed, the abdominal cavity freed from its clots, thoroughly irrigated, and drainage practiced, with the subsequent recovery of the patient.

More careful study and experience in the progress and development of ectopic pregnancy, seems to us to indicate more clearly the importance of early resort to abdominal operation or radical procedure for its relief. Abdominal section is absolutely indicated in every case in which indications of rupture and hæmorrhage are present. In such cases time is of the greatest value. A collapsed and enfeebled condition of the patient may tempt the operator to endeavor first to overcome the effects of shock before subjecting her to operation, but what would be thought of the surgeon, who, when called to see a patient, suffering from rupture of a vessel of large size, which was pouring out the life-current, should neglect to resort to instant measures for its arrest? Incision and ligation of the bleeding-

vessel is just as absolutely indicated when hæmorrhage is taking place internally as if occurring externally.

May 13, 1890, I was called to see a patient 40 years of age, mother of twelve children, who had had a miscarriage eight months before. She had menstruated some five weeks before. The night before I saw her she went out to an entertainment, and was taken with violent pain in the side and faintness. She fainted several times during the night. When seen she was bloodless, pulse feeble, and unable to raise her head from the bed. The abdomen was large, pendulous, and gave negative symptoms upon vaginal and abdominal palpation. Believing that she was suffering from internal hæmorrhage, an incision was made. Two quarts of liquid and clotted blood were found in the cavity. In the left tube, rupture of a cyst the size of a cherry had taken place, and from it the hæmorrhage resulted. The tube was removed, irrigation and drainage used. The patient had an uninterrupted convalescence.

The ligation of the vessels, the emptying out of the abdomen, of the accumulated blood, the irrigation of its cavity with hot water, the stimulation of the flagging nerve centres with hypodermic injections of strychnine and the application of external heat, would be the measures which would give the most certain promise of relief to the suffering patient. When rupture has not yet occurred and the symptoms indicate the presence of an ectopic gestation, our treatment will depend somewhat upon the stage at which it comes under observation. If before the fifth month a section should be made as early as possible, and the fœtal sac with its contents removed. This should be done for the reason that we have developing a fœtus in such a position as to give rise to the greatest danger to the mother with the least reasonable probability of its safe continuance to viability.

After the fifth month the pregnancy may be permitted to continue until near the completion of a normal pregnancy, with the hope that a living fœtus may be delivered. In the operation for the removal of such a fœtus great care must be exercised to prevent hæmorrhage. Where it can be done, the seat of the placenta should be encircled with ligatures before this organ is removed. The placenta may be removed by rapidly peeling it off from its base and arresting hæmorrhage by gauze packing.

In other cases where it has a broad base, and severe hæmorrhage is feared, it may be preferable to permit the placenta to remain and be subsequently thrown off. The sac in such cases should be sutured to the abdominal wall, so as to exclude the peritoneal cavity in the subsequent progress of the condition, and thorough drainage should be secured. If the fœtus be dead it is better to postpone operation for its removal until after six weeks or two months, when the circulation in the placenta will have become occluded and there is much less danger from hæmorrhage. Where the fœtus has been dead for a length of time and has become encysted, it is preferable that the operation should be done while the patient still remains in a healthy condition, rather than to wait until through some action or changes that have taken place in the sac and its contents, serious inflammatory conditions may be present which will greatly complicate the removal and the subsequent convalescence of the patient.

If following suppuration of the sac, sinuses have formed through which portions of the bones of the fœtus have been discharged, the best results will usually be obtained by dilatation of the sinus and removal of the remaining portions of the fetus found within, irrigation of the sac and subsequent drainage.

A CERTAIN CLASS OF OBSTETRIC CASES IN WHICH THE USE OF FORCEPS IS IMPERATIVELY DEMANDED.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, Washington, D. C., May 5, 1891.

BY AUGUSTUS P. CLARKE, A.M., M.D.,
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Among obstetricians there is a conviction deepening more and more by experience, that whenever a preference is to be made between the use of forceps and a resort to internal version, the forceps should be chosen. The danger will be much less not only to the child but also to the mother. The risk that the child be born asphyxiated, and often, the difficulty if not impossibility of establishing artificial respiration, when internal version is had recourse to, are admitted by all accoucheurs. Even when in that class of cases in which there is much deformity, or unusual narrowness of the pelvis, the forceps is safer than version. In offering this statement, in favor of the choice of forceps, it is not on the ground that greater skill is required in the management by version, but because statistical reports of the masters of almost every country show that great risks are incurred by the employment of this method. All are aware that the forceps, within a comparatively recent period, has been used much more frequently than formerly. The adoption of the practice has assured greater safety in parturition; the mother has escaped many dangers, the mortality has been greatly reduced, and suffering has been more or less diminished. The timely use of forceps has also resulted in great saving of fœtal life. It is said as an objection, that the forceps

has often been used to terminate labor that was in all respects progressing favorably. Admitting that this may sometimes have happened, we are taught, nevertheless, the fact that the obstetrician, having known the advantages to be derived by the forceps, and guided, as we must presume, by an intuitive instinct in the conduct of the right doing, has sought only to minimize a suffering, which to the minds of those less appreciative, would be regarded only as the development of the normal physiological function. Influenced in conduct by such motives the question arises, in what class of cases is the use of forceps imperatively demanded? Formerly the chief indications for the use of the forceps were the undue resistance from the soft parts, the debilitated condition of the mother, and the occurrence of convulsions. The indications here enumerated fall far short of comprising the conditions in which the forceps is now required. Within a recent period great improvements in obstetric practice have been made. The skill exercised in the development of surgical instruments generally has given us important improvements in the construction of forceps; consequently many cases of protracted labor, which would have heretofore been left to other methods of procedure, can now be happily terminated by the timely use of forceps. When the head of the fœtus has descended into the cavity of the pelvis, and the labor has become lingering from uterine inertia, the forceps may be used with the greatest advantage. In protracted labor when the fœtal head has engaged the pelvic brim, or has only reached that introitus and become arrested in its descent, the forceps should be preferred to all other means for relief. The necessity for the application of the forceps in such cases implies the existence of a normal, or a nearly normal, proportion of the pelvic cavity. In the case of Mrs. B., aged 23 years, who was confined March 10, for the fourth time the fœtal head engaged in the pelvic brim, but could make no further descent. The pelvis, however, was well formed; the antero-posterior diameter was three and one-half inches, and the transverse nearly four inches. The position was occipito-anterior.

Regular recurring pains continued until some time after the cervix had fully dilated, and the membranes had ruptured, and the head had engaged the pelvic brim. After this, by some cause, apparently from the breadth of the shoulders and the size of the head, the case did not progress. Ether then being administered and the long forceps applied, labor was brought to an easy and speedy termination. The child was strong and did well. The mother suffered from no serious inconvenience. In her third confinement I was called in attendance. A similar condition of things obtained, except that the os, or rather the cervix, was slower in undergoing dilatation. Ether was given and the long forceps was used, without any mishap. In her second confinement I was also in attendance. The patient was much longer in labor; the position of the head was unfortunately occipito-posterior, and the head did not readily engage, but rested on the pelvic brim. The long forceps was called into requisition and delivery was successful. During her first confinement I was not in attendance. From the history of the case it appears that the patient was some twenty hours in labor. The forceps had to be used. The child was born alive; the head, however, I was informed, was much disfigured.

In a case to which I was called March 15, the head entered the pelvic cavity, but failing to make further perceptible advance, forceps was used. The position was occipito-posterior; delivery was easily accomplished. Both mother and child did well.

In another case to which I was recently called, the liquor amnii had escaped early, and the labor was making but little progress. The os and cervix were only partially relaxed. The pains were unusually severe, and at times almost tetanic. Morphia used hypodermically, and the inhalation of ether served in some measure to overcome the rigidity of the uterine cervix, and to enable me to apply long forceps to the head which was resting on the pelvic brim. In a case to which I was called in consultation the patient had been in labor some eight hours; the membranes had ruptured, and the pains were severe and exhausting, but failed to effect propulsion of the head. Chloral and subsequently ether were administered. This overcame the uterine spasms, and also served to relax and to dilate the cervix. Owing to the rigid and irritable conditions of the uterus generally, a resort to version was deemed unsafe, both to the mother and to the child. Forceps of somewhat unusual length was finally chosen, and delivery was safely accomplished. In reviewing the obstetric practice which I have had for the past twenty-four years, I find that in the cases in which the head became arrested at or above the brim of the pelvis, the results of each of the various methods adopted for relief clearly show that the long forceps is to be preferred. In almost every case in which the head of the child was at the brim, or had rested upon it, if forceps sufficiently long was employed, delivery was accomplished without serious injury. In cases in which the head had not reached the brim, if the cervix was relaxed, and supra-pubic, and abdominal pressure was rightly exercised, forceps could be applied, and delivery safely effected. In giving the results of my experience I make no reference to cases in which the head was above the brim, when there was evidence at the same time that the child was not alive; nor do I intend to consider the class of cases in which

a preternatural presentation occurs. In every such case the medical attendent can be guided only by the history of the patient, his own experience, and the indications before him. In regard to the great resistance offered by the soft parts as an indication for the choice of forceps, other methods of procedure may be resorted to with the most beneficial effect. Ether, and in cases of suspected renal complications, chloroform, chloral, opium, or morphia, hypodermically used, and nitrate of amyl will often assist in overcoming the vulval resistance. The administration of any one of the above may be supplemented by ergotine or by a milder ocytocic. The recent advances made by the development of the practice of gynecology unmistakably show, that the great resistance which is sometimes offered by the soft parts to the descent of the fœtal head, especially when such resistance occurs in the vulva, should not be overcome by the application of forceps. By the employment of force, undue distention, and laceration of the vulva and of the vaginal introitus, as well as the lower segment of the uterus, the tissue and vessels of the bladder, and also of the perineal structures, are liable to take place. In cases of posterior occipital presentation we have a different element opposing the descent of the head. After the head has entered the pelvis the force of the uterine pains becomes misdirected. In this class of cases it is seldom that the soft parts offer any considerable resistance. The employment of the forceps, as has been said, merely regulates the propelling force, and soon without producing any untoward results the child will be in the hands of the nurse, and every danger which can reasonably be apprehended is found to have been averted. In regard to that class of cases of protracted labor in which the head has descended to the pelvic brim, experience shows, if I mistake not, that the forceps is imperatively demanded. In a case of protracted labor in which the head has not reached the brim, and the child is still alive, the results of my experience are largely in favor of the forceps. For every such case the forceps selected should be of the required length, and of a curve adapted to the peculiar features of the pelvis. The following case, to which I was called in consultation, illustrates the advantages of forceps in high operations: Mrs. H., aged 35 years, had been in labor twenty-seven hours. This was her first labor. Her physician had been in constant attendance. When I arrived I found that the membranes had been ruptured and that the os and cervix had fully dilated. The head was considerably above the pelvic brim. After the patient had been profoundly etherized long forceps was applied, but as soon as traction was made the blades slipped because they had not been curved sufficiently to allow their convex edges to sweep the hollow of the sacrum. Forceps with a sharper curve was more easily applied, and the patient was quickly delivered of a living child whose weight exceeded nine pounds. The patient recovered without serious, constitutional, or local disturbances. Occasionally I have been called in consultation to cases in which I was expected to apply forceps before the cervix had fully dilated. In all such cases I advise waiting and endeavoring to effect by some of the different means proper dilatation of the lower uterine zone. In cases of puerperal eclampsia in which it is deemed necessary to hasten labor, digital and manual dilatation of the cervix should first be accomplished. Then, if the head presents, whether at the brim of the pelvis or above it, the forceps should be used. In breech or footling presentations, after the head has descended into the pelvis, the forceps is often of the greatest benefit in expediting labor, and thus preventing asphyxia of the child. In deciding in any case as to the necessity for the use of the forceps careful consideration has to be exercised. In reviewing discussions on the subject we have noticed that the advantages and safety of the forceps has been variously estimated. In the practice of some, the forceps has been used as often as once in every four to six cases. The necessity for such frequent use may not seem unlikely to occur in the practice of those who are connected with lying-in hospitals, or in the practice of those who are often called in consultation. This frequent employment of the forceps merely for shortening the time of labor betrays lack of appreciation of the real advantages to be derived by instrumental interference, and also want of conception of the dangers, either immediately or remotely, that may follow in any case in which forceps has been brought into requisition.

A REPORT OF TEN SELECTED CASES OF LAPAROTOMY, WITH REMARKS.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

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The following brief report of laparotomies is made in the hope that its variety may not be wholly devoid of interest:

Case 1.—Mrs. D., æt. 38, presented herself at my office in the early part of April of last year, suffering considerable pain and inconvenience from a rapidly growing tumor in the abdomen, situated immediately to the right of the umbilicus. The growth was somewhat movable, and the size of a fœtal head.

She presented an anxious expression, suffered from insomnia, and was rapidly losing flesh. A short time previous to this interview, a council

of several gentlemen had decided that her trouble was floating kidney, and had advised, and she had submitted to, tight bandaging with compresses, to keep the supposed floating kidney in place; this was worn for several days, until she rebelled on account of the pain which it occasioned.

As at that time there was no suspicion of anything of a malignant nature, and as I was on the eve of my departure for a month's absence, and she evidently needed "toning up," I left her in the care of my assistant, but advised removal of the growth by abdominal section, immediately on my return home—which I may mention was hastened several days on account of news of her rapidly increasing unsatisfactory condition.

May 29, she was anæsthetized, and the abdomen opened in the linea alba, the incision extending from the umbilicus, to near the symphysis pubis. Upon passing my hand within the abdomen, over and around the tumor, I found extensive attachments. The ventral wound was extended three inches upward, and to the left of the umbilicus, and the growth turned out. It was attached to the mesentery, the intestines and the lower lobe of the liver by an intricate mass of adhesions, and was carcinomatous. Of course there was but one thing to be done, and that was to return it to the abdominal cavity and close the wound.

She rallied nicely from the operation, and much to my surprise the abdominal wound healed throughout nearly its whole extent by first intention, only a sinus remaining at the lower angle of the wound to give us trouble. I scarcely need say that she has since died.

Case 2.—On June 13, just fourteen days after my very unpleasant experience with the case above referred to, Mrs. A. E. A., æt. 32, who had long been a sufferer from ovarian irritation, with all its attendant ills, was placed on the table and both ovaries and the Fallopian tube of one side were removed through a two and one-quarter inch incision in the linea alba. Each ovary was not only inflamed and enlarged, but one furnished more than a tablespoonful of pus. The reaction was prompt, and the wound healed by first intention, all stitches being out by the seventh day. The cure in this case is complete; the lady goes into society, does shopping, and now superintends her household affairs, and is again the bright star in the beautiful and refined home over which she presides.

Case 3.—Mrs. R. C., æt. 29, rather fleshy, though always pale, had been a sufferer from ovarian irritation since she was 14 years of age. Her spine had been many times blistered, cupped and painted with iodine, croton oil, tartar emetic, etc. Her womb had been dilated—though for what real reason heaven only knows. She had been sent to Colorado, to the Hot Springs of Arkansas, Eureka, and many others, but to no advantage.

She was anæsthetized with bichloride of methyline used in a Junker's inhaler. An incision two and one-half inches in extent was made in the linea alba, and both ovaries and both Fallopian tubes were removed. She also rallied well, the ventral wound healing by first intention. She walked out, a block away to the corner grocery, on the sixteenth day; she is now in the enjoyment of excellent health, and so far with the sexual instinct the same as before operation. In both these cases of Battey-Tait operation there has been no return of menstrual flows.

Case 4.—Mrs. S. G., æt. 44; an anæmic, bedridden sufferer, with an enormous sub-peritoneal fibroma. Bowels could not be moved even by powerful cathartics and rectal injections, oftener than once in twelve to sixteen days, when they would suddenly run off for two or three days. This condition was occasioned by mechanical pressure, which produced irritation and inflammation, and caused many adhesions. The growth was removed through an incision extending almost from the xyphoid cartilage to the symphysis pubis. While breaking up adhesions very gently with my finger, I had the misfortune to split the softened gut to the extent of two and a half inches; fecal matter poured into the abdominal cavity, which was quickly cleansed by sponges squeezed out of a 1:2,000 mercuric bichloride solution. Placing my finger in the rent, the tissues were so softened that the tear extended at least another inch in extent, making three and a half in length. It was closed up with silk, using the Lembert suture.

When the operation was completed she was almost moribund. About a dozen and a half hypodermic syringefuls of brandy were thrown under the skin in the arms and legs, she was put to bed and her body and limbs surrounded by hot water. Reaction was obtained slowly but perfectly, and recovery was uneventful. A stitch-hole sinus gave the only real trouble, and did not close for over four weeks.

Case 5.—October 16, 1889, I received a letter by messenger from a medical gentleman, urging me, if possible, to meet him, together with two others, in consultation, immediately on the arrival of the train. He said, "my diagnosis is uterine tumor, probably fibrous. She is suffering intensely with tenesmus of the bladder and rectum; something must be done early, and I hope you will be able to come this evening."

I found the doctor's fears to be indeed well founded. A lady of culture and refinement surrounded by every evidence of luxury, but was in a semi-unconscious state, with a temperature of 103°, suffering excruciating agony, which the most heroic doses of morphia only relieved by being frequently repeated. A tumor to all ap-

pearances hard and solid, protruded at the front of the abdomen, yet was jammed down in the pelvis, and its lower segments could be distinctly felt in the retro-uterine space.

Matters were indeed desperate, and although abdominal section gave but a ray of hope, yet it was decided to give her this slender change. It was done the next morning, and we found a suppurating tumor, broken down in its entirety, which sprang from the left ovary, and pus, pus, pus everywhere. The operation lasted fifty minutes; she rallied gradually, and with no nausea, but although the temperature came down almost to normal, she died of exhaustion, and previous septic infection, on the fifth day after the operation.

Case 6.—Mrs. E. D. H., æt. 37. Since the birth of her only child, now 14 years of age, has never been "just well." About four years ago began to suffer much pain, and an unusual loss of blood at her menstrual periods. Matters went on from bad to worse, during which time she had gone the "grand rounds," consulting "regulars," irregulars and defectives. At the time of my first interview I found a woman nervous, anæmic and pale from loss of blood, spending one-half of her time in bed, and losing blood three weeks out of four; thus having only one week in the intermenstrual period in which to recuperate. Examination revealed the uterus enlarged to a size of that between the third and fourth month of pregnancy, the os quite low down, and the fundus and part of the body easily felt through the abdominal parietes. By bimanual palpation was easily made out its hard, nodular and irregular outline. The removal of the ovaries to bring about the menopause was promptly advised, and as promptly declined. Coupled, however, with the request that something be done other than a surgical operation. Much against my own judgment I consented to retain the management of her case, and during a period of four months following subjected her to many hypodermatics of ergotine introduced in the linea alba, with the advantage of producing two painful abscesses and no control of the hæmorrhage. I now informed her that temporizing, at least at my hands, was at an end, and that she must be governed wholly and absolutely by my advice, or I should retire from the further management of her case. A family council was held, which resulted in their acquiescence, and a laparotomy was performed the next day. Bichloride of methyline in a Junker's inhaler being the anæsthetic used. An incision five inches in length was made in the linea alba; introducing the hand into the abdomen, it was easy to make out six or seven hard multiple myomatous tumors, varying in size from that of an almond to that of a goose egg, imbedded in and protruding from the walls of the uterus; the ovaries were found and removed without difficulty, and the ventral wound closed with silk-worm gut sutures. Recovery prompt and uneventful. Some show of blood at two or three menstrual periods following, but no hæmorrhage, cure complete. She is not a believer in hypodermic medication.

Case 7.—Mrs. R. O., æt. 25, was first a mother at the age of 19. Had been an invalid since the birth of her youngest child, now 4 years of age. Suffered from albuminuria; had "sinking spells" together with an enormous distention of the abdomen, for the relief of which she sought, not the Pool of Siloam, but the healing and rejuvenating waters of Lebanon, Mo., where she came under the professional care of my friend, Dr. J. M. Billings, of that place, who, recognizing her real condition, referred her to me for operation.

The doctor arrived the next day, but I suggested to him that on account of her unsatisfactory condition it might be well to postpone the operation for a few days (her temperature being two degrees above normal), when he replied, "you may as well proceed with the operation, for you will never get her in better condition; only a short time ago her husband was sent for to come to Lebanon to see her die."

Accordingly the operation was performed the day after his arrival.

Our diagnosis was unilocular cyst of the left ovary. Circumference of the abdomen over the umbilicus was 39 inches. Time of operation, one hour; weight of tumor, 36 pounds; it was multilocular, instead of unilocular as we had supposed.

There were extensive but not firm adhesions, which were abdominal rather than pelvic, the most troublesome being in the region of the liver. Pedicle was transfixed, ligated and pocketed.

The ventral wound was closed with sixteen silk-worm gut sutures. External dressings, antiseptic gauze, compresses and the time-honored flannel bandage.

Much to my surprise, I found her at 7 P.M., on the evening of the day of the operation, with a temperature of 98 degrees, and no vomiting.

The temperature did not go above 100 degrees until after the tenth day.

Ten sutures were removed on the seventh day, and the remaining six on the eighth, the wound having healed throughout by first intention.

On the evening of the tenth day the temperature suddenly went up to 102.5 degrees, and by the twenty-second, in spite of antipyretics, had reached 103 degrees, after which it steadily and rapidly declined to 98 degrees with the space of five days.

I accounted for the above condition as follows: At the time of the sudden rise of temperature the skin assumed a yellow tinge, and within twenty-four hours had presented the dark, yellow hue of a typical case of jaundice, continuing until the twenty-second in spite of all the medication which had been used.

I now became convinced that the trouble was occasioned by occlusion, more or less complete, of the ductus communis choledocus, on account of contraction of the raw surfaces which had been produced in breaking up adhesions in its vicinity, and that my patient would die if not relieved. So I resorted to no very gentle massage, over this particular region, and with the most happy effect, for within twenty-four hours the skin and conjunctiva had sensibly cleared up, and rapidly continued to do so until they had assumed their natural hue.

The temperature within the first twenty-four hours had fallen nearly 3 degrees, and as I before stated, was normal by the end of the fifth. After which she went on to a rapid and satisfactory recovery.

Case 8.—Mrs. F. C., æt. 45. When in good health a large, fleshy woman. Mother of several children. About four years ago noticed some change in her menstruation, it being increased both in duration and quantity. At first she gave it little thought, as she suppose she was reaching the climacteric.

Later on she noticed a small lump in the right ovarian region, together with an increase in the size of her abdomen. Yet, as she expressed it, she thought she must be again pregnant "in spite of herself." The abdomen continuing to enlarge and the period of pregnancy having passed, she realized the possibility of abdominal tumor of some kind.

Her general health now began to fail. She lost flesh, suffered from indigestion, and had many profuse uterine hæmorrhages, together with a rapidly increasing abdomen; and at the time I saw her, the *facies ovariana* was well marked.

At the preliminary examination of this case, I was at first a little undecided, on account of the uterine hæmorrhages and the nodular and somewhat irregular outline of the abdomen, whether it was an enormous subperitoneal fibroma, or a multilocular cyst. I finally, however, decided that it was a multilocular cyst, and had the satisfaction of confirming my diagnosis at the operation.

A tumor of 30 pounds weight was removed, which was partly solid, but having many compartments; the solid part furnishing a most beautiful specimen.

The pedicle, which contained two unusually large vessels, was transfixed, ligated and dropped back into the abdomen.

Wound closed by silk-worm gut sutures, and antiseptic dressings applied. Time of work fifty minutes. Some nausea, but no vomiting followed. Abdominal wound was inspected on the morning of sixth day; it having healed by first intention, without a drop of pus or a blush of inflammation. No rise of temperature at any time of over 2 degrees above normal.

Case 9.—On December 10th, 1890, Mrs. M. B., age 38, height five feet one inch, weight ninety pounds, was sent to me from a distance to have an unilateral laceration of the cervix restored.

She first menstruated at the age of twelve. Was married at 25. Is the mother of two children, the youngest being now seven years of age, from the birth of which she dates her ill health.

For the past five years has been absolutely unable to endure marital relations. Has suffered great pain and tenderness in right ovarian region, and, in a lesser degree, also in the left, together with weight and dragging in lower part of abdomen. Has suffered much from insomnia, palpitation of the heart, and is very melancholy. Has been often confined to her bed for weeks at a time, the longest being from January to June of last year, at which time, as she expressed herself, she was "past pain."

She suffered much from menstrual headaches, and was seldom free from the peculiar sense of heat and weight upon the vertex, so characteristic of uterine and ovarian irritation. At the time of my first interview, I found a woman just upon the verge of insanity. One of the first things I did was to remove a horseshoe pessary from her vagina, which she had worn for many months. The little tear in the cervix amounted to next to nothing.

Some granular erosion existed on the os, and the uterus was inflamed and congested. With the right index finger in the vagina, and the left hand upon the abdomen, I could easily make out the soft, baggy and irregular rounded tumors, sausage-like, in the ovarian region, the right larger than the left, both being exquisitely tender, and although the examination was conducted with care and gentleness, yet she complained of nausea and faintness. She was, therefore, advised to submit to laparotomy for removal of both ovaries and Fallopian tubes.

After one week of rest and preparation, the operation was performed on December 17, 1890.

Bichoride of methylene in a Junker's inhaler being the anæsthetic which I always use in my abdominal operations, was of course the chosen one. Through a two and one-half inch incision in the linea alba, the left tube and ovary was easily removed. Not so, however, with the right, as it was prolapsed deeply into Douglass cul-de-sac, and was bound down by many and rather strong adhesions. After being brought out through the ventral wound, I found not only an enlarged tube, but also a beautiful specimen of hæmatoma of the ovary, in size about as large as a turkey's egg.

I wish here to call the attention of my professional brethren to the excellence and safety of Mr. Lawson Tait's Staffordshire knot in the ligation of the pedicle.

The ventral wound was closed with silkworm

gut sutures introduced from within outwards. The patient rallied nicely, and, as is usual in my experience with the anæsthetic used, with no nausea.

Her recovery was eventful, the temperature at no time going above 101 degrees. Sutures were all out by the seventh day, and she returned to her home in one month after the date of operation.

A gratifying feature in this case was the prompt amelioration of all her unpleasant nervous symptoms—within a week after operation the expression of her countenance was markedly changed. She became bright and cheerful, and proved herself to be a woman of far more intelligence than I at first supposed her to be. I shall watch the after-results of this case with much interest.

Case 10.—Mary A. J., single, æt. 38, height 5 feet, 5½ inches, weight before operation, 199½ pounds. American, of rather masculine appearance, large bones, coarse features, having hair on the upper lip and chin. I found her in the poor house near Trenton, Grundy County, Mo., on November 26, 1890, suffering with a colossal growth of the abdomen, a good idea of which may be obtained from the photograph which I took at the time of my first interview.

Measurements taken at that time were as follows: Circumference at largest part just below umbilicus, 50 inches. Circumference just below the mamma, 35 inches. From xyphoid cartilage to symphysis pubis, 32 inches, not including the pendant appendum, which is shown in the picture. From xyphoid cartilage to umbilicus, 13 inches; from right anterior superior spine of ilium, to umbilicus, 14 inches; left anterior superior spine of ilium, 13½ inches. Circumference of pendulous portion of growth at neck just below symphysis pubis, 27 inches. Circumference at its base, 30 inches. The surface was smooth, tense and slightly elastic, large tortuous veins passing in various directions.

Percussion imparted a slight wave that almost suggested fluid within a sac. The uterus was drawn up to the extent of twelve or fourteen inches. She walked with great difficulty and with a waddling gait, bending far backward, the better to keep "the center of gravity within the base," and thereby be better able to sustain the enormous weight of her abdomen. She was compelled to pass her urine while standing upon her feet.

Attempts had been made six and two years respectively, before my first examination, to tap her, and although a large trocar was thrust into the growth at several points, yet nothing came out but a few drops of blood.

Diagnosis.—Either multilocular ovarian cyst or œdematous myoma of the uterus.

At the beginning of her enlargement she was supposed to be *enciénte*, was spurned and cast off by her family and friends, and after suffering many privations and hardships finally brought up in the poor-house, where I first saw her, at the solicitation of two prominent ladies from whom I had, during the past summer, removed large ovarian tumors.

Their attention being called to this poor unfortunate, and being actuated by that bond of sympathy "which makes all the world akin," they provided the means for her care and transportation to St. Louis, for operation, provided I thought best to do so. Although she was at the time failing rapidly, I saw that she had not the slightest ray of hope from any thing but an operation, and believing that the justifiableness of any operative procedure consists in its necessity, I advised her to accept the only chance, though a slender one, for her life, which she promptly did.

A few days later she was brought to this city by Dr. H. H. Wilson, of Trenton, Mo., and one of the ladies above referred to, and placed in the hospital.

During the few days of rest and preparation before operation, I requested Mr. Thompson to have her weighed. The following was received from him:

ST. LOUIS, December, 6th, 1890.

Dr. McIntyre:—Your case, Miss Mary E. Johnson, in room No. 10, was weighed by me at 9:50 A.M., and tilts the beam at 199½ lbs., good weight. Respectfully,

F. P. THOMPSON.

On the morning of December 7th, 1890, the operation was performed with the assistance of Drs. Broome, Marks and Nichols of this city, and Dr. H. H. Wilson, of Trenton, Mo.; Drs. Gib. W. Carson, R. A. Quarles, P. S. O'Reilly, Moore and medical students Charles Lewis and F. P. Thompson of this city being present.

Bichloride of methylene in a Junker's inhaler, was the anæsthetic chosen. Anæsthesia was easily and promptly induced, and was maintained during the one hour and five minutes that the operation lasted, five and one-half drachms being used.

An incision fourteen inches in length was first made in the linea alba, below the umbilicus, and afterwards extended up to near the xyphoid cartilage. The hæmorrhage made by the incision in the abdomen wall was very free, and the enormously distended vessels required the application of a large number of pressure forceps. Adhesions were found almost everywhere, the most difficult to manage being those attached to the liver and diaphragm. The broad ligaments and Fallopian tubes were ligated on either side, the tumor turned out, the thick heavy pedicle transfixed and ligated, and the tumor cut away.

It is a matter worthy of remark, that at the time of detachment of adhesions to the diaphragm the patient sank rapidly, and as it was thought that she might die on the table, hypodermics of whisky were freely used before she rallied, and several minutes of time lost during the interval.

A stream of hot water was kept playing upon the wound during the whole time of operation.

The toilet of the peritoneum was necessarily hurried, and was greatly facilitated by pouring pitcher full after pitcher full of distilled water heated to a temperature of 110 degrees, into the abdomen. The ventral wound was closed with silkworm gut sutures, adhesive straps applied across the abdomen; compresses and the time-honored binder completed the dressing.

As she was being carried from the operating room, through the hall to her bedroom, the stretcher was allowed to rest upon the platform scales for a few moments, and we found that we had 106 pounds of woman left, and as her weight before operation in the same clothing was 192½ pounds, we found that the weight of the tumor was 93½ pounds. Placed in bed she was surrounded by bottles filled with hot water, and free hypodermics of whisky used. Within a few hours she had rallied well and with no nausea.

This case was manifestly one for drainage, but on account of the vast expanse of lax abdominal tissue, I did not believe that red serum would gravitate into Douglass'-space sufficiently to remove it through the Kieth tube. I therefore remarked to the gentlemen present that if at any time the temperature went up so as to require it, we would cut a few ventral sutures and flush out the abdominal cavity. By the morning of the second day, forty-eight hours after the operation, the temperature in spite of antipyretics went up to 103.5. She was taken into the operating room and the abdomen flushed with hot distilled water, and many blood-clots and much serum removed, with the result that within six hours the temperature had fallen to 101°. A drainage-tube being now introduced furnished but little serum afterwards. Temperature did not go above 102 degrees for the succeeding twenty-four hours. Within another forty-eight hours, symptoms of septicæmia became manifest, together with septicæmic vomiting, and she died at 4 A.M., December 12th, the fifth day after operation.

REMARKS.

The lesson which I learned, and the regret which I have in the after-management of this case, especially after witnessing the lowering of the temperature and the amelioration of unpleasant symptoms after the flushing of the abdomen with a large quantity of hot water, is that I did not resort to it again, or indeed as often as might seem necessary, for she became bright and cheerful, took liquid nourishment well, and flatus passed the bowels, and I began to have high hopes of her recovery.

The ordinary drainage-tube did comparatively little good, as the enormously distended abdominal walls favored collections of serum in pockets, it did not gravitate into Douglass' pouch; consequently the peritoneum with its wonderful absorbing powers, which at once constitute its safety and its danger, took up septic material with fatal results.

In looking over the literature of this subject I find no mention of any solid tumor of this size being removed.

Keith, late of Edinburgh, now of London, successfully removed an œdematous myoma, together with the uterus, which was of 42 pounds weight, on the 18th of April, 1881.

Mr. Lawson Tait, of Birmingham, England, reports in Vol. 1, of his recent work, "Diseases of Women and Abdominal Surgery," page 187, that the largest uterine myoma which he ever removed in his life was of 68 pounds weight, and that it grew after the menopause. So, I believe that this one of my own, 93½ pounds, is the largest yet reported.

In all laparotomies I carry out the strictest antiseptic precautions, although I abandoned the spray six years ago, and I now get better results without it than I did with it. All instruments are placed in a large shallow photographer's dish containing a 1 to 40 carbolic acid solution, be-

fore and at the time of operation. Plenty of the finest quality of sponges, cup and flat, are kept for this operation alone, and are used in no other, and I give their cleansing and preparation my own personal attention. Bleeding points are ligated with fine Japanese cable silk. The pedicle is always ligated and pocketed. The ventral wound I always close with silk-worm gut threaded upon two long veterinary needles, and pass the needles from within outward, always including the peritoneum. The idea of its use I received more than ten years ago from Geo. Granville Bantock, of London. It is very strong and smooth, and can easily be made aseptic; being somewhat stiff, it should be steeped for a few hours before being used in a solution of some kind, so that there may be no difficulty in tying it tightly. It is the ideal suture, not only in closing the ventral wound in laparotomies, but also in lacerations of the cervix and perineum.

For inducing anæsthesis, I use exclusively bichloride of methylene in a Junker's inhaler, and now with an experience in its use in over three hundred operations of various kinds, while I have not infrequently seen nausea, I have only seen vomiting five or six times.

When in doubt I always drain, and prefer Keith's glass tube to all others.

I use but little opium or morphia, for the reason that this drug, by locking up the secretions, limits the power of elimination, and thereby favors septicæmia. For over a year past in cases of laparotomy where pain and rise of temperature was present, I have used antikamnia in ten grain doses with the happiest effects.

After doing the Battey-Tait operation a large number of times, I wish here to add my testimony to that of others, that removal of the uterine appendages does not entail a loss of sexual feeling; excitability of the genital organs still remains, the voice is unaltered, and the womanly attributes are no less after the artificial than after the natural menopause.

1614 Olive St.

THE TREATMENT OF OCCIPITO-POSTERIOR POSITIONS.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D.C., May, 1891.

BY A. WORCESTER, A.M., M.D.,

OF WALTHAM, MASS.

The discovery of an occipito-posterior position is always a most unwelcome discovery. Even if all other conditions are favorable, this is unfavorable, and at best means a longer labor and an increase of all the dangers of exhaustion; while, on the other hand, in such cases, more often than in cases of occipito-anterior position, operative assistance is demanded, and yet can be given only with more difficulty.

In view of this greater probability that operative assistance will eventually be necessary, and in view also of the greater safety, to both mother and child, if such assistance be given early, I maintain, contrary though it be to generally accepted teaching, that, instead of being less ready, we should be more ready to assist the delivery in cases of occipito-posterior, than in cases of occipito-anterior, position.

I cannot, however, accept as very practicable the plan of rotating the fœtus from an anterior to a posterior position before labor begins. For, even if it is easy to do, it can be done only at the sacrifice of the mother's natural confidence that all is just as it should be with herself and unborn babe. Moreover, this rotation can be just as well performed after labor has begun, when the sufferer longs for every possible assistance.

In this paper I propose to consider the treatment only of such cases as are unlikely to progress favorably either if left to nature, or if assisted merely by flexing the head and favoring rotation manually. After briefly considering the six methods in common use, I hope to show that one of these methods, slightly modified, is preeminently advantageous.

1. Let us first consider podalic version. By this method delivery can be quickly effected. The only disadvantage is the danger of lacerating the parturient canal; or, if time sufficient for the stretching of the perineum be allowed, there is then the danger of suffocating the child. Probably in no other obstetric operation does the personal equation of the operator count for so much. And the skill which alone can insure safety to both mother and child can be gained only at the expense of many a perineum and many a fœtus.

2. By manual rotation of the occiput to the front, the original disadvantage of a posterior position can be eliminated. Where this can be done without anæsthesia, and at exactly the proper time, no safer method of treatment need be sought. But, if done too early, the head will generally rotate back into its original position before it becomes engaged; while, on the other hand, if artificial rotation is not attempted before the uterus has firmly grasped the fœtus, it becomes a very difficult task. Moreover, it is only in exceptional cases that manual rotation can be done without anæsthetizing the patient; and then there is an awkward interval before the uterine and abdominal muscles sufficiently recover from the anæsthesia to engage the head. During this interval the new position can be maintained only by holding with the hand. A more trying situation for both patient and accoucheur cannot be imagined.

Let us now consider the four methods of treating occipito-posterior positions by means of the forceps.

3. By applying the blades over the parietal

bones, the head can be delivered with the face under the pubic arch. This can be safely done where the head is fairly small in proportion to the size of the pelvis, and where the perineum is very lax. But inasmuch as it can be done only at considerable risk, and only by much stronger traction than would be necessary if the occiput were in anterior position, this method can be recommended only when previous manual rotation of the head is contraindicated. Practically, it is probable that in a large proportion of the cases where the head has been delivered by forceps with the face under the arch, the diagnosis of occipito-posterior position has been made post-partum.

4. With straight forceps, the head can be rotated while in the parturient canal.

5. By repeated applications of the forceps, as the head rotates during its assisted descent, the natural progress can be imitated. Not having employed either of these last two methods, I am not justified in criticising. The objections to each method are obvious, but there could certainly be no objection to practicing either upon the cadaver.

6. After manual rotation of the occiput from posterior to anterior position, the head can be delivered by means of the forceps, or can be drawn down into the pelvis in this acquired favorable position, and left for natural expulsion.

The only difficulties attending the employment of this method have been in conforming the traction to the axis of the parturient canal, and in maintaining the anterior position of the occiput while applying the forceps. The first difficulty, common to all high forceps operations, has been practically obviated by the use of axis traction instruments. And the second difficulty can be obviated *by applying the instruments under the guidance of the operator's hand inside the uterus.*

After the entire escape of the liquor amnii, and after the uterus has by its tonic contraction, or by its retraction, firmly grasped the fœtus, or still worse, after the head is impacted in the pelvis, it is, of course, as impossible to rotate the occiput into anterior position as it is to do podalic version. The trouble in such cases, however, is due, not to the impracticability of the method here advocated, but to the mismanagement of letting pass the only time when the child's life might have been saved.

Until the child's life has been thus defaulted, it is certainly easy, with one hand in the uterus of the fully anæsthetized patient, for the operator to rotate the fœtal head into anterior position. He may, of course, need the aid of his other hand, or of his assistant's hands, on the outside. If now the forceps can be properly applied, the disadvantage of the original position will be overcome.

In the use of forceps at the brim of the pelvis, unless the operator is exactly sure of the position of the fœtal head, of its complete flexion, and also of the location of the blades' impingement, it is a matter of luck if the delivery proves to be easy and safe. If there is difficulty in locking the instruments, or if, on traction, the handles separate, the operator of course will suspect that some mistake has been made in applying the blades. But the only way of being absolutely sure, and of rectifying any unfavorable condition, is by means of the whole hand inside the uterus. Now it is not practicable, after the forceps are applied, to introduce into the uterus the whole hand, but while the hand is inside the uterus, it is practicable, and safe, and easy to introduce and apply the forceps. The wrist and forearm of the operator, if rotated from his shoulder, allow each blade in turn to pass through the parturient canal alongside their sensitive flexor surfaces, thus beautifully guiding the blades into the uterus, where, in the palm of the operator's hand, each blade in turn can be applied to the elected area of the fœtal head. Having then locked the handles, and having placed the head in the most favorable position as regards the pelvic diameter, the operator can then easily withdraw his hand alongside the shanks of the forceps.

If, now, axis traction appliances are attached, thus guarding against the dangers of traction in any tangent to the pelvic axis, the fœtal head can be delivered, or, after having been drawn down into the pelvis, it can safely be left for natural expulsion. If by this method the child's life is not saved, the accoucheur may rest assured that the living child could not have been delivered *per vias naturales.*

In offering to the profession any new method, it is proper to give one's own experience therewith. I therefore add the reports of the four cases where I have employed the method advocated:

Case 1.—Mrs. B., primipara, 27 years old, had been in labor thirty-six hours when I was called by Dr. E. R. Cutler to help in her delivery, December 15, 1890. There was no engagement of the fœtal head. Under the mistaken diagnosis of an occipito-pubic position, the forceps was applied, and we each in turn vainly tried to effect delivery. After removing the forceps, with the whole hand in the uterus, the position was found to be occipito-posterior. Without removal of the hand, after rotating the occiput to the front, the instruments were reapplied, the hand was withdrawn, and then the child was easily delivered in good condition. The posteror vaginal wall suffered a slight oblique laceration.

Case 2.—Mrs. R., primipara, 25 years old, had been in labor twenty-one hours when I was called in consultation by Dr. A. Greenwood, December 27, 1890. Her condition necessitated artificial delivery. Her pelvis was contracted; the distance between the crests of the ilia being 10

inches, between the anterior superior spines of the ilia 7½ inches, between the trochanters 12½, and the external conjugate diameter being 6¼ inches. Under full anæsthesia the dilatation of the os uteri was completed normally. The occiput was rotated from left-posterior to left-anterior position, and, without removal of the hand, the forceps was applied. Traction-rods were attached. After tremendous pulling, a male infant weighing 8 lbs. was delivered. His right eyelid was torn. With some difficulty he was resuscitated, but he died the next day, evidently from injuries received during delivery. The mother's vagina suffered several slight lacerations.

Case 3.—Mrs. H., quartipara, 29 years old, after several hours of ineffectual second-stage labor, was etherized, Dr. H. A. Wood assisting, March 24, 1891. The position of the fœtus was occipito-right-posterior. With the whole hand inside the uterus, the position was changed to occipito-anterior, and forceps applied before withdrawing the hand. A male child weighing 10 lbs. was then easily delivered. The mother's vagina and perineum suffered no damage.

Case 4.—Mrs. C., primipara, 22 years old, had been in labor twenty-four hours, and the pains had almost ceased, when, with Dr. H. A. Wood's assistance, she was etherized. The fœtal head had descended to the inferior straits in left-posterior position. In spite of good flexion, there had been no sign of natural rotation. The head was thereupon pushed back above the pelvic brim, rotated to anterior position, and forceps applied to it before removing my hand. Extraction was then easy. The female child weighed 7 lbs. and was uninjured, although one blade of the forceps was applied to the right eyebrow. The mother was also uninjured.

THE MANAGEMENT OF THE OMENTUM IN ABDOMINAL OPERATIONS.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY ANDREW F. CURRIER, M.D.,
OF NEW YORK CITY.

It is hoped that it will not be considered impertinent to offer a few suggestions upon this subject, apparently so simple, before a body composed so largely of abdominal surgeons, or surgeons who are familiar with abdominal operations, as is this section. The fact has been impressed upon my mind not only by my own experience, but by observation of the work of others, and a search of a considerable portion of the literature of abdominal surgery, that the subject in question has not received the attention which it deserves, and that it is by no means a matter of insignificance. This statement will be the more readily accepted if one remembers that the essential portion of the omentum (the greater omentum alone is referred to in this paper) consists of peritoneum, and that its function, by virtue of the abundance of fat which forms one of its constituent elements, is of importance, inasmuch as it protects to a greater or less extent, the viscera which lie under it from sudden changes of temperature. Such a covering is therefore of great value in those localities in which climatic changes are not only sudden but severe, and in which one requires all the resources of art as well as nature to preserve the physical equilibrium.

It is therefore desirable in all cases in which the abdominal cavity is exposed that one observe the following propositions with reference to the omentum:

1. It should be preserved as nearly intact as the conditions of each individual case will allow.

2. Great care should be exercised to avoid wounding it in making the abdominal incision, or bruising or lacerating it at subsequent stages of an operation.

3. Badly injured portions should be resected with all due precautions, also such portions as cannot be so replaced as to occupy their original position and perform their normal function.

4. Before closing the abdominal wound it should be carefully and evenly replaced as the natural covering of the intestine.

In the large class of cases in which the lesions demanding surgical interference are located entirely, or to a great extent, in the pelvis, the omentum is very frequently a source of no particular trouble during an operation. If the incision is a short one with its lower limit near the symphysis pubis, and the omentum is not voluminous or adherent it may not be seen at all, and we are conscious of its presence only as it becomes entangled about the fingers when they are passed downward into the pelvis. The operation may be completed and the incision closed without a thought or an intimation of the presence of an omentum.

If an abdominal sponge is used to absorb the leakage from divided vessels and protect the intestines it must not be forgotten that as the sponge presses the latter upward it presses the omentum upward also, and when the sponge is withdrawn the omentum may still remain displaced, or gathered into a lump, or otherwise abnormally disposed so that it can no longer perform its proper function. In all the secondary abdominal sections which I have seen, including one of my own, I have never seen the omentum in its normal position. In my case neglect to properly replace this structure furnished opportunity for adhesion of the intestine to the parietal peritoneum, and so near was it to the incision that it barely escaped injury from the knife. In those cases in which the omentum is normal in

appearance but adherent to the parietal or visceral peritoneum the necessity for careful management must be self-evident. If it has been roughly handled peritonitis with new adhesions will almost certainly result. It must therefore be so evenly and so carefully disposed that if new adhesions are formed they will cause the least possible disturbance to the functional activity of the viscera to which they are attached.

Another class of cases includes those in which the omentum is atrophied or defective.

If the abdominal cavity is encroached upon by a large tumor, whether cystic or solid, the integrity of the omentum and its functional usefulness are generally destroyed. With such growths inflammatory processes are of frequent occurrence and may result in the most intimate adhesive union of the omentum with the peritoneal covering of the tumor. Should the new growth attain a large size and the omentum be imprisoned between it and the abdominal wall, the resulting pressure would cause absorption and disappearance of more or less of the fatty tissue in the omental structure, though the adhesive union of the peritoneal surfaces might continue. Of course it may happen that the omentum will be pushed upward by the advancing tumor, and that disturbances from pressure or inflammation will not be of such a character as to impair its structure. If atrophy have resulted from this or any other cause —by atrophy being meant the condition in which the quantity of omental fat is very small, it is not an indication that the omentum will require less careful treatment; on the contrary it must be handled with the greatest delicacy, and spread over the intestine with great nicety before the abdominal wound is closed, for the frailty of its structure endangers its integrity, and a small rent which might be overlooked might furnish entrance for a loop of intestine with disastrous strangulation as a consequence.

In the removal of large tumors with adherent omentum, conservatism and safety alike demand the free excision of all strips and fragments of the destroyed and useless structure. Too often has it been the method to tear away adherent portions from the tumor, tie their bleeding points, and then drop them, careless as to their arrangement, and forgetful of the fact that attachment to the intestinal may result in such a way as to favor intestine obstruction. A far better plan seems to me to leave no long ends floating about among the intestines, but to cut them off as high up as possible, even if it be necessary to approach the neighborhood of the stomach, then having obtained a straight or nearly straight lower border, to tie all bleeding points and sear the entire edge with the cautery at a low temperature.

Another class of cases, which, however, is a small one, includes those in which the omentum is hypertrophied. Such cases may be very troublesome. Not only is the deposit of fat of great thickness, but the structure may extend, like a long apron, deeply into the pelvis. To replace such a structure properly is a very difficult matter unless the abdominal incision has been a very long one, and even then it may not be entirely successful. Such a case recently occurred in my practice. The patient was a young widow, a masseuse by occupation, who was recovering from peritonitis and metritis following a curettement of the uterus, when I was called to see her in consultation. In addition to these inflammatory troubles there was a distinct tumor on either side of the uterus, within the pelvis. The patient was hysterical and a morphine eater, but an abdominal operation did not promise to be extra-formidable or extra-hazardous. The adhesions in the pelvis were readily broken up, an ovarian tumor as large as a hen's egg, with adherent and dilated tube, was removed from the left side, and equally degenerated but not quite so large appendages from the right side. The omentum dipped deeply into the pelvis and particular pains were taken to tuck it carefully and smoothly down. The effort was unsuccessful, for the patient died on the sixth day from septic general peritonitis (though there were also two perforations on the anterior aspect of the descending colon), and the inferior portion of the omentum on the right side was compressed into a mass as large as a child's fist, which was necrotic, evidently from interference with its circulation. I do not know that this was the primary or principal factor in producing the fatal result, but it was a factor and therefore carries a lesson and a warning with it. It would have been better in this case, and the rule would apply in all similar cases, to excise the lowest fourth of the omentum throughout its entire width. The remainder would have furnished ample covering for the intestines, and the bad results from pressure might have been obviated. The case which has been narrated is also illustrative of an accident to which the omentum is susceptible when hypertrophied or when adherent to the parietal peritoneum. In the case in question the omentum was very thick and in contact with but not adherent to the parietal peritoneum. In making the incision the tissues below the recti muscles were cut layer by layer, being made tense by the traction of hæmostatic forceps secured to either side of the wound, and then divided. Such a plan usually enables one to avoid cutting either omentum or intestine, for as soon as the peritoneal cavity is reached the tension of the forceps on either side of the wound draws its edges apart and reveals the space. It failed to do so in this instance and the omentum was incised on the supposition that the præ-peritoneal fat was being cut. Of course the mistake was soon discovered and with it the fact that the omentum was hyper-

trophied not only as to thickness but also as to length. I know of no infallible rule for preventing such accidents. It has never happened to me before and I can conceive of its happening to even the most careful and expert operators.

Wounds of the omentum may become sources of danger from sepsis, peritonitis, or hæmorrhage. In cases in which the omentum has been greatly torn or bruised sepsis and peritonitis are probably more frequent than is generally supposed. Certainly a loosely constructed, freely absorbing, easily degenerating tissue like this offers favorable conditions for serious inflammatory and septic trouble when once an injury has been received. The subject is one which invites pathological investigation in unexplored territory. Hæmorrhage from the omentum may be troublesome, serious or fatal. It is more likely to be venous than arterial, an oozing which may show little tendency to cease. A case of hæmorrhage of this character is reported as recently as May 18, of this year, in the *New York Medical Journal*, and in the practice of so eminent and careful a surgeon as Prof. William T. Bull. Fortunately in this case the bleeding was relieved by means of an iodoform gauze tampon within the abdomen, but such treatment would be ineffective and haphazard in many cases and might do serious damage by pressure upon other structures. Hæmorrhage from the omentum can usually be controlled by ligating the layer vessels, whether veins or arteries, with fine silk and touching all oozing points with the cautery. The latter is more effective than hot water irrigation, especially if trouble is anticipated from many oozing points.

Rents and incisions in the omentum have already been referred to, and the peculiar dangers to which they give rise. Hence they must not be neglected nor slighted whether small or large. They should be carefully and accurately closed with a continuous suture of fine Chinese silk or reliable catgut. It should not be forgotten by the abdominal surgeon that the object of his art is not merely to relieve the present suffering of a patient and remove an existing lesion, but to avoid the induction of other lesions which might be more intolerable than the original one. Unfortunately, such an ideal result is not always possible even to the most skillful or the most cautious, and this fact warrants constant vigilance and unwearying discussion of the subject in all its bearings and possibilities.

159 E. 37th St.

In Honor of Virchow.—The freedom of the City of Berlin is to be extended to the eminent pathologist and medical patriarch on his seventieth birthhay; and upon the same occasion his portrait will be hung in the Council Chamber.

THE REMOTE EFFECTS OF FŒTAL BRAIN INJURY IN LABOR; OR, WHY WE ARE RIGHT-HANDED.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY F. W. GOODALL, M.D.,
OF BENNINGTON, VT.

We are right-handed because of injury of the motor centres of the right side of the fœtal brain in labor. The manner of receiving this injury, and something of its nature, constitute the subject of this paper.

Some may take exceptions to my premises, and assert that the causes which determine the position of the fœtus "at term," are the primary causes of right-handedness. This I decline to discuss. Much might be said concerning the bones, diameters, planes and outlet of the female pelvis, in introducing my subject. All these points I pass over, and pause only to say that the contour of the parts, or the natural structure and relations of the various bones and organs pertaining to the female pelvis, in connection with the physical character of the fœtus, determines in a mechanical way how it shall present at delivery, and the presentation determines what motor centres, if any, shall be injured; and for the purposes of this paper, I embrace all head presentations under four varieties, which will be briefly defined in passing. I deal only with the first and fourth varieties, as it is only in these presentations that the right side of the head takes the brunt of labor. Largely in consequence of the rectum occupying the notch in the left side of the sacrum, the fœtal head, which is naturally the presenting part, presents, in the great majority of cases, with its long axis in the right oblique diameter, the occiput being directed towards the left acetabulum, and the forehead towards the right sacro-iliac symphysis. From the relative position of the uterus, the pelvic canal, its floor and outlet, taken in connection with this position of the fœtal head, the most advanced point of the head in the progress of delivery is usually somewhere to the right of a line drawn from the nasion (root of the nose) to the inion (base of the external occipital protuberance), and between the anterior and posterior fontanelles, a very important field of motor centres. In this position of the head, which is called in obstetric language the "first position," its long diameter is nearly parallel with the superior plane of the pelvis at the commencement of labor, but there is a very decided lateral obliquity of the head, in consequence of the inclination forwards and downwards of the fundus uteri, the right side of the cranium being considerably lower than the left, and the most depending part of the cranium is the right parietal eminence.

The earlier the examination is made the more decided the above condition will be found; as the head passes the brim of the pelvis and descends into the pelvic cavity, it rotates, and soon its long diameter has become nearly antero-posterior, the occiput being directed forward, and the most dependent point has now become the upper and posterior part of the right parietal bone, and this portion of the head is the part that first escapes from the vulva. The second obstetric position we pass over without notice, as in this position the occiput is towards the right acetabulum, the forehead towards the left sacro-iliac symphysis, and the left parietal eminence is the most advanced point of the head. The third obstetric position, with the forehead opposite the left acetabulum, the vertex towards the right sacro-iliac symphysis, and the left parietal eminence the presenting or most dependent part of the head, we also pass over. In the fourth position, with the forehead directed towards the right acetabulum, and the occiput towards the left sacro iliac symphysis, we again find the right parietal bone most prominent, but in this presentation it is its anterior and upper part that is first reached by the finger, and injuries received in this position involve the right motor centres, as is also the case in the first presentation.

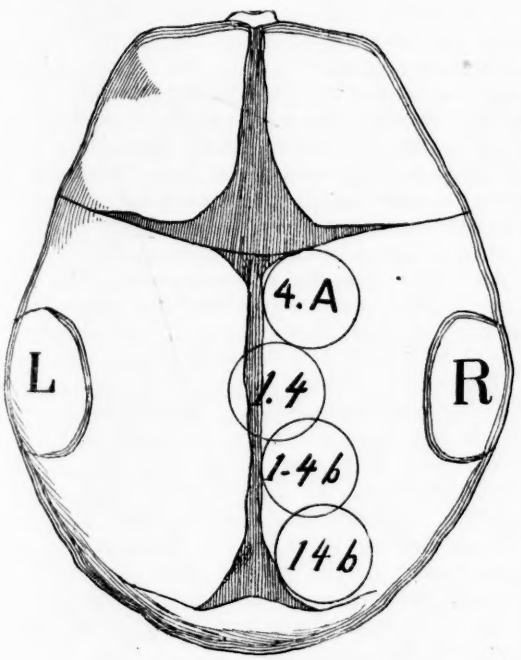
The relative frequency with which these several presentations are met, vary somewhat as stated by different observers, but it is conceded by all that the first variety by far outnumbers all the others. I think it is perfectly fair to say that from 70 to 75 per cent., or more, of all head presentations, are of the first and fourth varieties; hence 70 per cent. and upwards of all children presenting naturally, are born with the right side of the head subjected to a greater degree of mechanical pressure and violence than is the left side, and it is to this violence or injury of the right side of the fœtal head, that I wish to call your special attention.

It is only necessary to mention the existence of the caput succedaneum, so often seen at birth, that you will at once recognize and concede that the fœtal head has been subjected in some cases to a degree of pressure amounting to violence, varying in different cases, according to the expulsive power, and resistance offered by the parts through which it has passed. This scalp tumor is usually single, but in very protracted cases, especially if of marked severity, we may find two distinct tumors, or even a fairly well defined chain of several small ones, more or less blended in one mass of contusion.

All are not agreed as to the exact manner in which these tumors are produced. I was taught in my student days that they were due to pressure upon a rigid os, but personal observation of the phenomena of labor teaches me that the caput succedaneum is due to a lack of support of that portion of the head which engages within the ring of the cervix, and later on is found in the vagina with nothing to support it but a species of void, during the pressure of the combined forces brought to bear upon every inch of the remaining superficies of the fœtus. This small unsupported area represents, or is the point of impact, so to speak, of all the tremendous force hurled upon the fœtus as a whole, at every repetition of the labor pains, and in consequence of the varying position of the head, due to rotation, we get a little change in the position of the so-called point of impact, and in protracted, tedious cases, different points of impact remain nearly stationary, long enough to give rise to an individual tumefaction for the varying positions, thus giving rise to one or more tumors, as the case may be. These tumors are frequently serous in character, and are not infrequently filled with blood, as has been too often shown by puncture or otherwise. With such palpable evidence before us, it is not too much to claim that a like effusion may take place within the cranium, and if any one questions the correctness of this deduction, it can easily be sustained by consulting standard works, in which we are taught that hæmorrhage on to the surface of the brain may take place, or into its substance, and I assert, with laceration of the right hemispheres, even to a fatal extent, as one of the accidents incident to labor independent of instrumental assistance or interference—*and to these pathological lesions the physiological condition of right-handedness* is due.

These injuries, varying from the barely perceptible, to the rapidly fatal cases, produce changes in the survivors of like variable extent. The violence giving rise to the effusion of serum or blood within the cranial vault, with or without laceration of brain tissue, is a factor not to be lost sight of, and in connection with the effusions and lacerations we may get circumscribed atrophy of the brain, or modified brain tissue, as a result of secondary inflammatory action, or impaired nutrition, giving rise to permanent, weakened nervous energy, independent of the direct effect of the effusion or laceration, and these injuries may extend deeply, so as to involve not only the centre of speech of the right side, dwarfing it even to a rudimentary condition, but also to the extent of involving the origin of the right cranial nerves, at least those supplying the muscles of mastication, as may be seen by observing that right-handed people, other things being equal, masticate their food on the left side, these muscles being supplied with motor power by the left cranial nerves, which do not decussate as do the spinal nerves. By comparing the caput succedaneum of the infant at birth, with the field of motor centres of Ferrier, it will be seen at a glance, that the centre for the hand, forearm, arm and leg of the left side, are embraced in the field cov-

ered by the several points of impact during labor in the first and fourth obstetric positions; and the effect being somewhat diffused over the surrounding portions of brain tissue, it is not difficult to appreciate the very general remote effect, involving the muscles of the entire left side of the body; a condition of things heretofore never satisfactorily explained, but easily accounted for in this manner, and if no evidence of brain injury existed in these cases, other than the weakened condition of the left side of the body, that of itself would be evidence of such an injury, that cannot be explained so readily in any other manner. Any discrepancy that may exist in the exact location of the different motor centres as given by different observers, for instance, Ferrier and Horsley, is only apparent, not real, as the one locates with sharp limits and closely defined groups of muscles, while the other generalizes in his location of centres, and embraces large areas, or several systems of muscles, in his individual groupings, which, taken as a whole, correspond very closely.



Lectures on Obstetrics, Tyler Smith, p. 342, fig. 107.

R.—Right parietal bone.

L.—Left parietal bone.

1, 1, 1.—The different points of the right parietal bone which present successively in the first position.

4.—The part of the parietal bone which presents at the os uteri in the fourth position at the commencement of labor.

4 A.—The part of the parietal bone which presents at the osteum vaginæ, in the fourth position, when the head is delivered in the occipito-posterior position.

4 b, 4 b.—The points of the right parietal bone which present successively when the head, presenting in the fourth position, makes the quarter turn, and is delivered in the occipito-anterior position.

The foregoing is the primary cause of right-handedness, but heredity plays a very important, secondary part. Upwards of 70 per cent. of all natural presentations, present in a manner which we have seen tends to an injury, which favors atrophy or defective development of the right half of the brain, extending so deeply as to involve not only the centre of speech, but also the origin of the right cranial nerves.

This extreme brain lesion is not claimed for all the large per cent. of children presenting in the first and fourth positions, but it is claimed that a sufficiently large proportion of these cases does suffer as I have indicated, so that when we consider the repetition of the lesion through the thousands of years of human existence, there can be no doubt but what we have all the requirements for hereditary influence, which I consider unessential, however, and yet I consider it as a factor of no mean importance, and to illustrate the power of repetition, I quote Tyler Smith, Lectures on Obstetrics, page 318, who says: "The Caribs flattened the foreheads of their children, and the continuance of this practice through succeeding generations produced a natural flattening of the anterior part of the head, until the Carib infants were born with flat heads. Hippocrates gives an account of the Macrocephali, a Scythian race believed to have inhabited the Crimea, of whom the Father of Physic says: 'There is no other race of men which have their heads in the least resembling theirs. At first, usage was the principal cause of the length of their heads, but now nature coöperates with usage. They think those the most noble who have the longest heads. It is thus with regard to the usage: immediately after the child is born, and while its head is still tender, they fashion the head with their hands, and constrain it to assume a lengthened shape, by applying bandages and other suitable contrivances, whereby the spherical form of the head is destroyed, and it is made to increase in length. Thus at first usage operated, so that this constitution was the result of force; but in the course of time it was formed naturally, so that usage had nothing to do with it.'"

I could multiply examples indefinitely, but forbear. My position once being established, all such phenomena as the preponderance of tuberculosis of the left lung, the more frequent appearance of cancer in the left breast, and the oft commented upon, greater frequency of left lateral laceration of the cervix uteri, are at once easily explained, upon the basis of left side weakness, or left side enervation.

THE OLDEST AND LARGEST MEDICAL SOCIETY IN THE UNITED STATES.—The total active membership of the Medical Society of the County of New York is now given at over 1,100. At the last two meetings an increase of over one hundred has developed in the membership.

ADENOMA UTERI.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, at Washington, D. C., May, 1891.

BY HENRY C. COE, M.D.,
OF NEW YORK.

Introduction.—The writer formerly regarded true "malignant adenoma" of the corporeal endometrium as an extremely rare disease; late observation has convinced him that it is more common than he had supposed.

There has been very great confusion in the nomenclature of diseases of the endometrium. Mucous polypi, endometritis fungosa, true adenoma and adeno-carcinoma, have all been described as varieties of adenoma. This is not only anatomically incorrect, but leads to serious error from a clinical standpoint. Even such an acute observer and clear writer as Winckel has introduced confusion into his description of the condition. Many diagnoses are made from a microscopical examination of curettings alone. In doubtful cases, no careful pathologist will positively commit himself on such insufficient evidence. The crucial test of malignancy is *invasion of the submucous layer;* this implies examination of sections of a growth made *in situ*, after removal of the entire uterus. The writer starts out with the proposition that there is only one variety of true adenoma, and that is essentially malignant clinical. So-called "adenomatous polypus," "benignant adenoma" and "endometritis fungosa," are not considered at all, since they are not true adenoma.

Brief Historical Review.—Matthews Duncan is credited with the first reported case of malignant adenoma, though the diagnosis was not supported by a subsequent autopsy. Breisky and Eppinger reported most thoroughly a *bona fide* case in 1877, which has become classical. Schroeder wrote on the subject a few months later, describing two cases, and Veit confirmed his and Breisky's views regarding the ultimate transition of adenoma to adeno-carcinoma. Mann, Bertolet, Thomas and Goodell reported supposed cases, but Mann's description (case of Lusk's) is alone convincing. The most recent communications have been by Ruge, Veit and Fürst, the former having reported a case three years ago. The writer published a communication on the subject two years ago.

The writer has examined uteri removed by Wylie and Bache Emmet, which were undoubted specimens of pure adenoma uteri, that of Wylie's being an exquisite example of the diffuse form. He has himself extirpated two uteri in which the condition was circumscribed adenoma, and one in which there was a transition to adenoma-carcinoma. All five patients made a good recovery.

[Here follow brief histories and descriptions of the writer's specimens, which were to be presented to the Section.]

General deductions from the above cases:

Anatomy.—Unnecessary to describe the ordinary microscopical appearances of adenoma. The important point is that the malignant character of adenoma of the endometrium is shown by the fact that it is not confined to the *mucosa, but invades the submucous and muscular layers.* Moreover, in some specimens (as in Breisky's), the transition to carcinoma has been clearly established.

Symptomatology.—There is no clearly defined set of symptoms peculiar to adenoma, but the writer does not agree with Ruge that they are never distinguishable from those of carcinoma corporis uteri. In the first place, the symptoms of adenoma are of longer standing than are those of primary carcinoma. There is less pain, the hæmorrhages are less frequent and profuse, and, so far as the writer's observation has extended, there is little or no foul-smelling, watery discharge. Glandular and perimetric involvement has been entirely absent in the four cases personally observed by the writer. The negative results of the examination of curettings is important, since there is seldom doubt in a well-marked case of carcinoma.

Diagnosis.—This is sometimes extremely difficult, yet it is of more importance from a scientific than from a surgical standpoint. Given a patient who has passed the menopause, and who has for several months had slight atypical hæmorrhages with lancinating pelvic pains, even if a foul discharge, cachexia and other characteristic symptoms be wanting, we should make a thorough examination of the interior of the uterus by means of the finger and curette, after dilatation with tents. Finding a localized or diffuse papillary growth, we are justified in removing the uterus without delay, even if the microscope shows no positive evidence of malignant disease.

Prognosis.—As the history of the few *authentic* cases of adenoma uteri has shown, the course of the disease is exceedingly slow and insidious. It is the least malignant of all the forms of malignant disease of the endometrium, but if left to itself, it inevitably assumes a more fatal form. We should not be misled by the long-continued good health of the patient, and the absence of profuse hæmorrhage, offensive discharges, and local pain and tenderness. The end, though long delayed, is certain.

Treatment.—Total extirpation of the uterus is the only treatment to be considered. Frequent curetting simply hastens the transition to the more malignant type of which adenoma is the initial stage. The patient is relieved for a time, but her symptoms soon reappear in an aggravated form. The use of the galvano-cautery, though more efficient, is no less objectionable. Remove the entire uterus. In cases of adenoma the operation is easy and uncomplicated, and there is a better prospect of a radical cure than in carcinoma, either of the cervix or corpus uteri.

Summary.—"Benignant adenoma" is a misnomer. There is only one variety of true adenoma of the corpus uteri, and that is both clinically and anatomically malignant.

Adenoma uteri is not, at the outset, identical with adeno-carcinoma, but is to be regarded as the initial stage of the latter. Its malignancy is shown by its early recurrence after removal with the sharp curette.

The symptoms of adenoma are less clearly defined than those of carcinoma, being usually slight irregular hæmorrhages, and pelvic pains extending over a long period, without cachexia and offensive discharges.

Palliative treatment is worse than useless. Total extirpation promises a radical cure if performed early, or during the pre-cancerous stage.

LAPAROTOMY WITH REPORT OF CASES.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 1891.

BY J. H. BRANHAM, M.D.,
OF BALTIMORE, MD.

The following paper is a report of the eleven laparotomies which I have done up to this time. They have all occurred during the past two years. The number is too small to be of much value from a statistical standpoint, but the difficulties met with in these cases are probably more keenly appreciated by a beginner than by an older operator, and I hope, by calling your attention to these, to make my report of value to those surgeons who are entering this field.

No. Cases	Date of Operation.	Name.	Race.	Age.	State of	No. of Children.	Disease.	Operation.	Drainage.	Result.
1	Jan. 20, 1890.	Gaither T.	Col.	30	M	4	Uterine myomata.	Exploratory incision.	Yes.	Recovery.
2	Feb. 28, 1890.	Lizzie S.	White.	34	M		Right ovary displaced adherent to lower bowels, first stage of suppurative inflammation.	Right ovary and tube removed.	Yes.	Recovery.
3	April 1, 1890.	Catherine R.	White.	31	M	0	Chronic ovaritis with atrophy and adhesion.	Both tubes and ovaries removed.	Yes.	Recovery.
4	April 15, 1890.	Mary H.	White.	40	M		Very large double pyosalpinx with ovarian abscess.	Both ovaries and tubes removed.	Yes.	Death in 8 hours of shock and hæmorr.
5	July 7, 1890.	Mary L.	White.	31	S	2	Large right pyosalpinx.	Right tube and ovary removed.	Yes.	Recovery.
6	July 14, 1890.	Annie F.	White.	31	S	1	Enlarged and inflamed left ovary without suppuration.	Left tube and ovary removed.	No.	Recovery.
7	July 30, 1890.	Dora H.	White.	30	M	0	Dysmenorrhœa and Menorrhagia.	Both ovaries and tubes removed.	Yes.	Recovery.
8	Oct. 13.	Agnes L.	White.	26	M	1	Double abscess of tubes and ovaries.	Both tubes and ovaries removed.	Yes.	Recovery.
9	Nov. 13, 1890.	Catherine K.	White.	30	M	5	Left pyosalpinx and ovarian abscess. Right hydrosalpinx.	Both ovaries and tubes removed.	Yes.	Recovery.
10	Feb. 10, 1891.	Jane R.	Col.	37	M		Ventral hernia following laparotomy.	Omentum separated from sac, edges of peritoneum freshened and sutured.	No.	Recovery.
11	March 21, 1891.	Mary W.	White.	33	M	4	Right ovary displaced. Both ovaries fibroid and excessively tender.	Both ovaries and tubes removed.	No.	Recovery.

I will give, first, a tabulated history of the cases and then will call your attention to those points which seem to me to be of most interest.

Case 1.—Operated with intention of removing ovaries and tubes, but the tumor in its growth had surrounded them to such an extent that they could not be found. The bladder, which was adherent to the anterior part of the tumor, was drawn nearly up to the umbilicus, and was opened during the operation. It was carefully closed, and the patient made an uninterrupted recovery.

Case 2.—The right ovary was displaced into the inguinal region, was enlarged, softened, beginning to suppurate, and attached to the lower part of the small intestines by recent adhesions. In separating these, about one inch of the longitudinal diameter and more than half of the circumference of the gut was denuded of peritoneal covering and looked very dark, but this did not prevent a rapid convalescence.

Case 3.—Patient had suffered for thirteen years with symptoms of pelvic inflammation accompanied by dysmenorrhœa, fainting spells, etc. She had been confined to bed for months at a time, and was constantly in pain. The ovaries were atrophied and surrounded by many adhesions, and were enucleated with much difficulty. The wound healed by first intention, and although the patient has since continued to menstruate slightly her general health is much improved, and she suffers very little pelvic pain.

Case 4.—This patient was a robust German woman, who, in addition to immense abscesses of both tubes and ovaries had a large abscess between the uterus and vagina in front and the rectum behind. In attempting to enucleate this several of the large pelvic veins were torn, and it was necessary to pack the pelvis with antiseptic gauze to control the hæmorrhage. The post-mortem showed that the abscess behind the uterus could not have been enucleated without fatal result, and simple drainage would have been better.

Case 5.—Was a large pyosalpinx. Recovery rapid, and the patient is in excellent health at the present time.

Case 6.—Patient was nearly three months pregnant, which condition was suspected before the operation, but as the symptoms pointed strongly to pyosalpinx it was deemed best not to wait. The entire uterus was soft and cyst-like. The upper part as much so as the lower, which seems to be contrary to the opinion of Hager as indicated by the descriptions of his sign of pregnancy which I have seen.

The pregnancy was not interrupted and terminated normally about six months after operation. Since delivery she is said to have developed a slight hernia.

Case 7.—This case was operated on for menorrhœa, which prevented the patient from earning her living. All other methods of treatment had been tried without avail. The uterus, which was retroverted, was stitched to the abdominal wall. The patient was out of bed the night after the operation and walked the second night; notwithstanding, she recovered without fever, but developed an abdominal hernia which has since been cured by Prof. Thos. Opie.

Case 8.—Recovery uneventful except symptoms of impaction of the bowels caused by the use of morphia, and milk diet.

The use of morphia was necessary as the patient could not have a trained nurse. She is in excellent health at this time.

Case 9.—Patient had been suffering with symptoms of pelvic suppuration for nearly two years. On the right side the hydrosalpinx was attached to the broad ligament and uterus by a thick vascular pedicle in which the vessels were distended and softened, and severe hæmorrhage occurred at the time of the operation. The ligatures, which were first applied to the pedicle in the usual way, and, afterwards, to the vessels themselves, cut through, and the bleeding could only be partly arrested. Oozing continued for thirty hours, shortly after which the drainage tube was removed.

The wound suppurated and the patient was in a precarious condition for three weeks, after which she slowly improved. I was called to see her in March, and found her suffering from acute nephritis with general œdema and ascites. Under suitable treatment the albumen has disappeared from the urine and the dropsical symptoms have subsided, but she is left with a tendency to abdominal hernia.

Case 10.—The hernia here was large; the coverings consisted of the skin and superficial fascia, all the other structure being separated. The inner wall was lined with omentum which was closely adherent throughout its entire extent, and was separated with great difficulty. Since operation there has been no tendency to return.

Case 11.—Here the reflex symptoms had been very severe. Very much of her time was spent in bed and her pain was excessive. Dysmenorrhœa and menorrhagia very great, which kept her reduced to a skeleton. Her right kidney is very movable and at times is tender. This movability, which is shared by the left to a great extent, I think is partly explained by absolute absorption of all the abdominal fat. The time is too short to judge as to the final result in this case, but the improvement to date has been marked.

Cases 1, 2, 4, 5, 6 and 7 were done in the public ward of the City Hospital of Baltimore. Case 11 was done in private room of same hospital. Case 10, public ward, Bay View Hospital. Cases 3, 8 and 9 were performed at the homes of the patients. The strictest antisepsis was observed in each operation. Drainage was accomplished by the open glass tube plugged with antiseptic cotton, the fluid being removed by an ordinary glass or rubber syringe, to which was attached a piece of soft rubber tubing.

Cases 2, 4, 5, 8 and 9 were operated on for pelvic suppuration. Results in 2, 5 and 8 were all that could be desired; case 4 died, being the only fatal result. Tendency to ventral hernia noted in cases 6, 7 and 9 was undoubtedly caused in the first by distention of the abdomen in the progress of pregnancy.

In case 6, by the unruliness of the patient, who, when not watched closely, would get out of bed, and thus dragged the sutures, which were attached to the uterus, into the abdomen, from whence they were removed with great difficulty.

In case 9, it was caused by the distention of the abdomen due to the ascites. In cases 3, 7 and 11 the operation was done to cause premature menopause. In case 3 this was not accomplished. The patient still menstruates slightly and at irregular intervals. Here the ovaries were imbedded in old adhesions, and it is quite possible that in enucleating them a small amount of stroma was left which would account for the incomplete success. In the other cases the menstruation was arrested at once.

In these cases where I have operated to bring about the menopause the patients have been hopeless invalids, all other methods having failed to relieve them.

They thoroughly understood the effects of the operations and were anxious to have it done.

I have refused to operate in a number of cases where the symptoms were not so severe as to make life unbearable.

COPPER IN CHLOROSIS.—Liégeois has obtained very satisfactory results in chlorosis from the following formula, suggested by Luton:

℞. Cupri acetatis neut., gr. ⅙.
Sodii phosphat. cryst., gr. ¾.
Pulv. glycyrrhizæ, āā q. s.
Glycerinæ, āā q. s. ℥ℷ.
Ft. pil. no. j.

One or two pills before eating, noon and night.

THE ETIOLOGY OF DIPHTHERIA.

Read in the Section of Practice of Medicine and Physiology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 5-8, 1891.

BY J. LEWIS SMITH, M.D.,
OF NEW YORK CITY.

No other infectious disease of childhood has been so much investigated in recent years as diphtheria. It has been the subject of full and accurate study by the most distinguished clinical instructors in both hemispheres, and numerous microscopic examinations and experiments with cultures of its specific principle have thrown light on its nature. Nevertheless, it has continued to extend and destroy its victims. It has encircled the globe, occurring with a heavy mortality in every country reached by commerce or travel. We read in medical journals of its prevalence, with the usual death rate, in Brazil, Algiers, and in distant Australia. It has occurred for ages in Eastern Asia, where it probably originated, and the complex prescriptions of the Chinese doctors, which have descended as an inheritance with little variation from their ancestors, and which are frequently employed by European residents of China, have lately been added to the literature of this disease.

Notwithstanding the many discussions of the treatment of diphtheria in medical societies, the many remedies which have been employed, and the additional light thrown upon its nature by the discovery of its cause, the percentage of deaths from this disease continues large. A recent French writer on diphtheria states that the deaths in France are in numerical excess of the births, and largely on account of the prevalence of this disease. In London the mortality from diphtheria has been steadily increasing. Within the metropolitan registration area it caused 952 deaths in 1887, 1,311 deaths in 1888, and 1,588 deaths in 1889. These numbers would be greatly increased if the deaths reported from croup, which, wherever diphtheria is prevailing, is known to be, with few exceptions, a manifestation of this disease, were added to them. (*London Lancet*, May 17, 1890.) In New York City the deaths from diphtheria were 1,914, and from croup 639, aggregate 2,553 in 1888; from diphtheria 1,686, and from croup 605, aggregate 2,291 in 1889. In Brooklyn the deaths from diphtheria were 984, and from croup 391 in 1889; from diphtheria 1,101, and from croup 366 in 1890. These are probably the average statistics of the mortality from diphtheria in the cities where it prevails.

The presence of a great evil always leads to strenuous efforts to determine the exact nature and the most effectual mode of combatting it. It is now known that diphtheria is produced by a linear or rod-shape microörganism, having about the length of the one which causes tuberculosis, but considerably thicker. A rod-shape microbe is termed a bacillus, and that which causes diphtheria, is designated the Klebs-Lœffler bacillus in honor of Klebs, who announced his discovery of it in 1883, and of Lœffler, who subsequently more thoroughly investigated its nature. Lœffler cultivated it in appropriate media, and after a succession of cultivations, which removed it several generations from its source in the child, inoculated pigeons, rabbits and guinea pigs, with the last culture, and produced in them typical diphtheritic inflammation. Many others have repeated and varied these experiments with results similar to those obtained by Lœffler, so that the theory that diphtheria is caused by the Klebs-Lœffler bacillus is accepted. This bacillus presents aspects which to the experienced eye are characteristic. It often has a granular appearance and is stained in two minutes by the violet of methyle; it often exhibits a more intense coloration of its extremities than of its central parts, and its extremities are sometimes swollen so as to present a dumb bell appearance, or only one extremity is swollen, so that it has the shape of a pear or gourd; occasionally it is curved like an arc. (*Le Bulletin Med.*, June 15, 1890.)

The Klebs-Loeffler bacillus alighting upon the faucial or other mucous surface, or the skin denuded of its epidermis, obtains a nidus favorable for its development and propagation, but it does not enter the interior of the system; it is not taken up by the lymph ducts or blood vessels and conveyed to the internal organs; it remains localized upon the surface and produces there the characteristic inflammation; acting solely upon superficial parts, it cannot in itself produce systemic infection, or blood-poisoning, but like as the venomous reptile or the bee secretes its poison, which it communicates by its fang or its sting, it produces a chemical poison, which is readily taken up by the vessels and conveyed to the internal and vital organs.

This substance, which is the poisonous agent in diphtheria, and which produces systemic infection and death of the multitudes who perish from diphtheritic blood-poisoning, has been carefully examined and experimented with by L. Brieger and K. Fraenkel (*Berliner Klinische-Wochen.*, March 17th and 24th, 1890). They say that it may be evaporated at 122°, but is destroyed by a heat above 140°. It is soluble in water, but is insoluble in alcohol. It is not precipitated by ebullition, nor by the following medicinal agents: sulphate of sodium, sulphate of magnesium, chloride of sodium, nitric acid and acetate of lead. On the other hand, it is precipitated by concentrated carbonic acid, the ferro-cyanide of potassium, acetic acid, carbolic acid and nitrate of silver. It has, say Brieger and Fraenkel, the following composition: Carbon, 45.35; hydro-

gen, 7.13; azote, 16.33; sulphur, 1.39; oxygen, 29.80.

When it was separated from the bacillus by passing through the porcelain filter, and inoculated in rabbits and guinea pigs, it caused death in the small quantity of two and a half milligrams to each kilogram in the weight of the animal. Sometimes death did not occur until after weeks or months, while the bacillus itself inoculated upon one of the surfaces, caused inflammation with the exudation of fibrin, producing the diphtheritic pseudo-membrane, this chemical product of the bacillus, freed from the bacillus by the filter, did not, when inoculated, cause any fibrinous exudation or diphtheritic pellicle, though its action was so highly poisonous. According to Brieger and Fraenkel it is allied in its composition to the proteids or albuminoids, and it bears considerable resemblance to ichthyotoxicon, the poison secreted by sea eels. Many years ago Trousseau noticed this resemblance and related an instance in which seamen became paralyzed, some of them for three months, by eating a cooked eel. He saw the resemblance in these cases to diphtheritic paralysis. In a vacuum the poison produced by the Klebs-Lœffler bacillus retains its virulence for weeks or months. MM. Roux and Yersin state in the records of the Pasteur Institute, Paris, that their investigations have strengthened the belief that the Klebs-Lœffler bacillus is in itself comparatively innocuous, the chemical substance produced by it, described above, being the poisonous principle. These bacteriologists also separated this substance from the bacillus by filtration through a porcelain filter, and by inoculating dogs and sheep with it, produced in them a paralysis apparently identical with that occurring in children from diphtheria. Roux and Yersin also state that while the filtered liquid freed from the bacillus, and containing only the chemical substance, if infected under the skin of rabbits and guinea pigs, was very fatal, it caused little inconvenience, if introduced into the stomach.

Experiments similar to those related above, and clinical observations confirmatory of the views expressed by Klebs-Lœffler, Roux and Yersin, have been made by many others, which, since they are in the main corroborative, need not be related here.

Pseudo-diphtheria.—This term is employed through want of a better one. It is proper to state in this connection that clinical observations and experiments, carefully made, have demonstrated the fact that certain other microbes besides the Klebs-Lœffler bacillus, sometimes produce a pseudo-membranous inflammation upon the faucial or other surface, which as regards its anatomical characters, appears to be identical with that in true diphtheria. The only difference thus far discovered has been the absence of the Klebs-Lœffler bacillus, and the presence of other microbes. Whether these other microbes produce poisonous albuminoids by which the system becomes infected must be determined by future research, but if they do, these products seem to be different from that generated by the Klebs-Lœffler bacillus, for the peculiar paralysis which is so common in true diphtheria does not appear to occur, or is infrequent in pseudo-diphtheria. If the systemic infection be different in true diphtheria and pseudo-diphtheria, as appears to be the case, we see the propriety of recognizing two distinct diseases, just as our ancestors differentiated measles and scarlet fever, which, since both had a cutaneous efflorescence and redness of the fauces, were formerly considered identical.

M. Talamon states that not only other microbes, besides the Klebs-Lœffler bacillus, but also certain irritating medicinal and chemical agents, have the power to excite an inflammation with fibrinous exudation upon the faucial, or other surface, to which they are applied, which cannot be distinguished by its appearance and anatomical characters from that of true diphtheria except by the absence of the cause of the latter disease, to-wit, the Klebs-Lœffler bacillus. The inflammation produced by non-microbic irritating agents, as steam, boiling water, chlorine, cantharides, and ammonia, though attended by an exudation of fibrin, is obviously entirely distinct in nature, from that caused by microbic agency. Like any inflammation from traumatism, it always remains a local disease, and must not be confounded with diphtheria or pseudo-diphtheria.

Pseudo-diphtheria, according to my observations in the institutions and in family practice, occurs most frequently in the course of the eruptive fevers, and especially in scarlet fever. We must not mistake the necrosis or gangrene which is not uncommon upon the swollen fauces, in severe anginose scarlet fever, for a fibrinous exudation. It is difficult, perhaps in some cases impossible, to distinguish the one from the other on inspecting the fauces. Necrosis occurs upon the most swollen part, as over the tonsils or in their vicinity. A fibrinous exudation due to microbic agency is likely to extend to the velum or uvula. Diphtheria or pseudo-diphtheria complicating scarlet fever usually occurs when there is not sufficient tumefaction to cause necrosis, but it may supervene upon, and complicate a necrosis.

M. Sevestre, of Paris, says that the pseudo-membranous sore-throat, which occasionally occurs in scarlet fever, is generally considered in France as having a diphtheritic origin, and patients who are suffering from it are placed in the diphtheritic ward. It is, however, says he, a variety of sore throat, which ought to be dis-

tinguished from the diphtheritic. It is an early manifestation developing in the first days of scarlet fever. It is characterized by the production of white patches, which frequently are exactly similar to those of diphtheria, and which may occur upon the uvula and soft palate, so that its diagnosis from diphtheritic inflammation is often very difficult, but the pseudo-membrane does not extend to the larynx, and the general condition of the patients remains, in most cases, satisfactory. These sore-throats, adds Sevestre, commonly end in recovery, and they do not communicate diphtheria to neighboring children. Some of the patients alluded to by Sevestre, evidently had what we have designated pseudo-diphtheria, an inflammation with fibrinous exudation produced by other microbes than the Klebs-Lœffler bacillus, probably mainly by cocci, which are found in abundance in these cases. Some of the patients referred to by Sevestre, perhaps had scarlatinal necrosis. MM. Wartz and Bourges made microscopic examinations in nine cases of supposed diphtheria, complicating scarlet fever. In two of the cases in which the pseudo-membranous inflammation occurred at a late stage of scarlet fever, the Klebs-Lœffler bacillus was found in the exudate, but in the other cases, in which the pseudo-membrane appeared early, this bacillus was not present, but streptococci were abundant. In six of the cases the pyogenic staphylococcus was also observed (*Arch. de Med.*, May, 1890). The fact that the Klebs-Lœffler bacillus did not occur in cases in which a pseudo-membranous exudate appeared at an early stage of scarlet fever, justifies the belief, the writers say, that the appearance upon the faucial surface, which so closely resembled that in diphtheria, was due to the intensity of the scarlatinal inflammation. But in the two cases, in which the pseudo-membrane appeared at an advanced stage (the sixth and ninth days), the Klebs-Lœffler bacillus was present, and it is evident that true diphtheria had supervened.

We might quote the observations of Prof. Henoch, of Berlin, and Dr. McWerney, of the Royal Academy of Medicine of Ireland, showing that in scarlet fever the faucial inflammation, accompanied by the formation of a pellicle, so closely resembles that of diphtheria that it is difficult to make the differential diagnosis. But this inflammation is not followed by paralysis except when true diphtheria supervenes. It is caused by the agency of the scarlatinal, and other microbes than the Klebs-Lœffler bacillus.

The *American Journal of Medical Sciences* for May, 1889, contains an elaborate paper by Prof. T. M. Prudden, relating the microscopic examinations of the pseudo-membrane underlying tissues and the viscera, removed from the bodies of 24 children, who were supposed to have perished from diphtheria. But these cases, with two exceptions, were treated in institutions, where epidemics of the other infectious diseases are frequent, and sixteen of them had scarlet fever, measles, whooping cough, or an erysipelatous or phlegmonous inflammation, in parts at a distance from the fauces at the time of death. In no one of these specimens sent to Dr. Prudden by curators or reputable physicians, in the belief that they were removed from the bodies of those who had died of true diphtheria, could he find the Klebs-Lœffler bacillus, but instead he discovered the streptococcus and staphylococcus. These specimens for a time misled Dr. Prudden and the entire medical profession in this country, for the absence of the Klebs-Lœffler bacillus in the specimens of twenty-four consecutive cases seemed to show that this bacillus could not be the cause of diphtheria. But in no one of these cases so far as their histories show, did paralysis, which is so characteristic of true diphtheria, occur. These twenty-four patients died from a disease produced by the agency of other microbes than the Klebs-Lœffler bacillus, or what we, through want of a better term, have designated pseudo-diphtheria. Prof. Prudden has since discovered the Klebs-Lœffler bacillus in a dozen or more cases of true diphtheria. Prof. Welch, of Johns Hopkins University, also finds the Klebs-Lœffler bacillus in diphtheria, has obtained cultures of it, and by inoculating animals with these cultures has apparently produced the genuine disease in them; therefore he believes that the theory that this organism causes diphtheria is fully established.

From the facts as stated above we repeat that the disease heretofore designated diphtheria we must now regard as two diseases, to wit: diphtheria resulting from the action of the Klebs-Lœffler bacillus, and pseudo-diphtheria, resulting from the agency of other microbes, or else we must recognize two varieties, or rather forms, of diphtheria, the one caused by the Klebs-Lœffler bacillus and the other by other microbes. I may add that there is no evidence, so far as I have been able to ascertain, that the poisonous albuminoid generated by the Klebs-Lœffler bacillus, which albuminoid causes the systemic affection, or blood-poisoning in true diphtheria, is produced by any other microbe. If the streptococcus, staphylococcus or any other form of coccus produces a poisonous albuminoid similar to that generated by the Klebs-Lœffler bacillus, I am not aware that it has been discovered or isolated.

In the light of our present knowledge are we able to state whether diphtheria is primarily a local or primarily a constitutional disease? It seems that we must regard the disease produced by the Klebs-Lœffler bacillus as primarily local; but in reference to the disease produced by other microbes the question is still an open one, for in fatal cases the micrococcus is found in internal organs, as well as at the seat of the inflammation

upon the mucous surface. The length of this paper prevents our discussing the very important subject of the modes of propagation of diphtheria, which must be reserved for some other occasion.

PREMENSTRUAL PAIN AND CONVOLUTED TUBES.

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The views in this article occurred to me from the examination of about 700 ova ducts of man, cow, pig, sheep and dog. The substance of the views is that the main premenstrual pain and the pain which women have who are afflicted with tubal disease is essentially due to peristalsis or vermicular motion of the tubes themselves. It is, in short, tubal colic. The method of arriving at this idea was the following:

Four years ago I wished to acquire a practical knowledge of the heart and its diseases, so I dissected and examined a large number of the hearts of all animals within range of acquisition. Considerable vivisection was done. It does not require but few vivisections to demonstrate that the essential motive power of the heart is situated in its base. That the main ganglia which control and initiate regular movements to the heart reside in the auricles and not the ventricles. The nerve ganglia which give the heart its *rhythm* belong to its basal portion. These ganglia are called Remak's, Ludwig's, Bidder's and Schmidt's, and are well termed automatic cardiac ganglia. It is easy to observe the heart die out from apex to base. If the vivisection is carefully done the auricles (in the dog) will beat regular considerable time after the ventricles have ceased their rhythmical action, so I saw that the heart (which is one of the viscera) had some nerve apparatus within itself which gave it a rhythmical, periodical, cyclical motion. The heart waxed to a maximum and waned to a minimum in its continual motion. In short, it exploded about 75 times a minute.

Three years ago I wished to acquire a similar practical knowledge of the intestines and their pathology. So we included in the examination and dissection the above mentioned animals, but expecially the dog, on which the main vivisection was done. To demonstrate the point, the dogs were chloroformed and the abdomen opened. The intestines were generally found still and quietly at rest until the exposure to air stimulated them to move slightly. The dog was nearly always chloroformed to death inside of twenty minutes. But after the dog was dead the intestines, by simply tapping them, would go through their peristalsis, their vericula, periodical *rhythmical* motion for at least an hour. If the temperature was 80 degrees the cyclical movements could be kept up an hour and a half. In such experiments alone can be realized what is known as the "invagination of death." Now the same phenomenon which was seen in the action of the heart, is again witnessed in the intestines. It is *rhythmical* motion and must be caused by the same kind of an apparatus known as a ganglion. In fact the ganglia which do the motive work of the intestines are situated in the plexus of Auerbach and the plexus of Meissner. These plexuses reside in the gut wall. The same form of work can be done with the kidney and bladder and the same kind of ganglia found. They are *rhythmical* ganglia. It may be remembered that a nerve ganglion is a little brain. It is an automatic center. It is a sensorium of independent action. A ganglion is possessed with the powers of secretion and nutrition. It is a physiological center endowed with plenipotentiary power to initiate, continue and prohibit action. The function of a ganglion is to produce a rhythm. It is a nerve apparatus which wanes and waxes and explodes. It lives a periodic, cyclical life and the circle of its action is defined by its maximum and minimum points—in time.

Now, this same kind of experimental work was applied to the Fallopian tubes of man, cow, dog, sheep, and pigs. Many hundred ova ducts of the higher animals were carefully examined and lately, while studying with Mr. Lawson Tait, I have had plenty of opportunity to confirm the experiments on fresh human tubes, a few minutes after Mr. Tait had removed them from the patient. Some of the tubes were absolutely healthy, as they were removed for bleeding myoma and other causes. It may be remarked that the Fallopian tubes do not differ from other hollow viscera. They are governed by similar nervous apparatus. The tubes live a rhythmical life. They have a periodic function, and while useful to woman go through cyclical action. After considerable investigation and microscopical work I came to the conclusion that the tubes (and uterus) were governed in their rhythm by ganglia situated along their walls, and along the blood vessels which supply them. In order that these ganglia should be appropriately named, I styled them *automatic menstrual ganglia.*

Until some two years ago, when I began to investigate this subject, I had no idea of the importance of the tubes in the process of menstruation. But now I am becoming convinced that the tubes overshadow every other organ in menstruation. It seems to me that menstruation starts in the tubes and begins with tubal motion. The girl's puberty is heralded by tubal activity, and she is a woman when her tubes begin to move. (I am unable to find any difference in the ovaries at puberty except increased vascularity, and hence

a hastening in maturation of ova). The importance of the tubes in menstruation is best impressed on the mind when we consider their object. The whole business of a tube is to transport an ovum into the uterus from the ovary. As ovulation is a constant and progressive process, it has no periodicity to it. Ovulation has no monthly *rhythm*. An ovum simply bursts when it matures and we do not yet know the life and duration of a graafian follicle.

But menstruation is periodic and *rhythmic*. It is not strange that the essential change in menstruation should occur in the organ most concerned in the process—the tube. The tube must be prepared before it can either secure an ovum or transmit it along its canal. A still, dry contracted tube has really poor facilities for transporting an egg down to the uterus. But wait and observe the tubes awhile before menstruation. The automatic menstrual ganglia become active. As these ganglia approach and wax to a maximum the blood vessels of the tube gradually increase in size. The walls of the tube grow redder and redder until at the climax of menstruation, the tubal vessels are so full of blood that they present a dusky blue color. Step by step as the vessels dilate the automatic menstrual ganglia impart to the tube a vermicular motion, a peristaltic action, especially toward the fimbriated extremity, and this fringed funnel is drawn towards the ovary by the shortening of the muscle which holds the ovary to the fimbria of the tube. The mouth will then drop over the ovary and secure any ovum that may *accidentally* be ripe. At the same time that the tubes become vermicular in motion and the blood vessels dilate and exudation of fluid takes place in the tube which serve as a medium to float the egg down its channel. Hence the automatic menstrual ganglia prepare the tube to float an egg through its channel by giving the tube a vermicular or peristaltic motion, by enticing excessive blood in its vessels, and by inducing exudation of fluid in the tube to serve as a floating medium. Therefore the tubes are not mere ornaments of curiosity but the central organ of menstruation. If a fresh, healthy tube just removed from a woman be squeezed between the finger and thumb at some point, a distinct circular structure will slowly but *rythmically* follow. At the same time the longitudinal muscular layer will contract and bulge up on each side of the circular structure. Both muscular layers of the tube will act in precisely the same manner as those of an intestine under similar circumstances. This point can be easily verified by watching the end of the Fallopian tube when it is amputated from the uterus. The longitudinal muscular layer of the tube will by contraction draw its fibres away from the end while the circular muscular fibers will constrict themselves into a distinct cone—a point which aids in recognizing the tube. This vermicular or peristaltic action of the tubes will continue under blood temperature for some half hour if one applies irritation. Hence after an observation of a large number of fresh tubes from healthy animals and also an opportunity to observe the tubes fresh from women in the operations of various surgeons, and particularly in Mr. Lawson Tait's practice, I am more and more, the past few years, convinced of the dominant influence of the tubes in starting and maintaining menstruation. That the tubes properly prepare themselves for the only object of menstruation which is to get an ovum from the ovary to the uterus. The menstrual process, or in other words, tubal motion is initiated, maintained and concluded by the machinery which I have termed automatic menstrual ganglia. But what has all this to do with premenstrual pain and convoluted or contorted tubes? If we know the structure and function, the pathology is clearer. For some time I have observed that many diseased tubes had a spiral or corkscrew shape. In one particular case of removal of the tubes of an infantile uterus, the tube was less than three inches long, but was exactly in the shape of a cork screw. It had an angular, spiral twist. This tube was from a woman who never had a child or conception. The tube was, so far as I could see, absolutely healthy. It had the longitudinal and circular muscular layers healthy, as well as its mucous membrane and ciliated epithelium. Whence came the contortion or spiral bending? I noticed in the young of animals before birth, and for some time after, that the ova ducts are curled and spiral. As time goes on the tubes gradually straighten out toward their functional period. Now, the same spiral bending is observed in human fœtal life, and for some time after approaching puberty or tubal motion. So we may say that the spiral, contorted tube is a relic of fœtal and early life. In cases of infantile uterus the tubes occasionally retain the fœtal condition in some degree. But how are we to account for most diseased tubes being contorted, because most of the diseased tubes belong to women who have had children. Of course these tubes have been once straightened out, for they performed the motion by which an egg floated into the uterus and developed into an ovum.

It is likely that the main idea is atavism, a reversion of type to fœtal state. But I notice that the spiral of the fœtal tube is regular, while the spiral of the diseased tube is sometimes very irregular. If one will measure the Fallopian tube at the end of pregnancy it will be found lengthened almost twice as long as when in the non-pregnant state. This means that the individual muscles, the external longitudinal layer, are hypertrophied to nearly their ordinary length. But the calibre of the tube or its lumen is not

very much enlarged. This means that the circular or internal muscular layer of the tube does not hypertrophy very much. Hence, the external longitudinal muscular layer hypertrophies with the uterus during pregnancy. This hypertrophy requires a return to normal. It demands involution.

Now, if this involution goes on in an *irregular* manner, the tubal reduction will be uneven, and in this way the tube will become contorted. It is well to remember that the broad ligament or peritoneal covering of the tube does not hinder the tube from becoming contorted but very slightly, unless there has been inflammation of the peritoneum covering the tube. The tube lies loosely, in connective tissue, between the broad ligament, so that it will glide about between the finger and thumb if compressed. The peritoneum can easily be stripped off of the tube. Another remarkable fact I noted with some surprise, was that the peritoneum around the tube did not dip down in the depressions between the angles or bends of the tube, but stretched across them like a diaphragm. In cases of tubal removals for infantile uterus this is occasionally quite noticeable. The tube will lie curled up between the broad ligament like a cork screw with some degree of a regular spiral. However, in multipara the tubes which become contorted have not such a uniform regular spiral bending as nullipara, but present a saculated bulging at the angles of the bends not unlike a distended intestine. The calibre or lumen of diseased tubes, becomes irregularly dilated, and the irregular dilatation nearly always occurs toward the fimbriated end. The application of these observations becomes reasonable and useful. The tubes are just like any other hollow viscera. They are provided with a nervous apparatus to induce motion or peristalsis. The tubes seem to have an inherent tendency to revert to fœtal type or to a spiral condition.

Hence, when any inflammatory disease begins in the mucous membrane, the tendency is to show pathological changes at the fimbriated end first. This irritative condition of the fimbriated end sooner or later occludes the tube by blocking up the lumen with adhesions or inflammatory products. The uterine end is not often occluded in fact, but becomes impassable to fluids by the excessive swelling and angular bendings of the mucous membrane at that point. Now, we have fluids really confined in the tube. Inflammations and adhesions have stopped up the fimbriated end, and swollen mucous membrane has blocked up the uterine end. Under natural and diseased conditions the secretions of the tube accumulate. Hence arises the excessive and painful vermicular or peristaltic motion of the tube, from irritation of the diseased secretions on the automatic menstrual ganglia that control its action. This vermicular or peristaltic motion is tubal colic. Tubal colic is premenstrual pain. It is pathognomonic of tubal disease. When the intestines have wind or offending material in them, they become occasionally violent in peristaltic movements in order to expel the material (colic). The tubes do precisely the same thing to get rid of their irritating secretions. When both ends of the tubes are closed the peristalsis may become violent, and then the tubal colic is intensely painful and sickening. The ganglionic nature of tubal motion and colic is seen in various cases. The other day I examined a woman who had tubal disease of long duration. She was examined very gently, but the irritation of the examination brought on tubal peristalsis, and of course tubal colic. I carefully inquired of her how long the pain would last from the examination. Her own statement was, when it was once started, it lasted almost *two hours*.

Now, the violent peristalsis of the tubes on the *confined* fluids is what causes the dilatation and thinning of the walls. The greatest dilatation of the tubal wall will be at the bends or angles, which will be the points where the expanding force is the most active. In general, this occurs at the abdominal end of the tube. Considerable observation of the fact that, from those women who suffered long with tubal colic, the operation generally produced the convoluted or contorted Fallopian tube, convinced me that convoluted tubes is a frequent occurrence. The pain that these convoluted tubes give rise to from peristalsis, is what induces the woman to seek aid in her distress. I shall venture a step farther, and say that premenstrual pain is nearly always tubal, and that the gynecologists whom I have heard instruct with such confidence and authority that premenstrual pain was from the uterus, will have to draw their views more to the horns of the uterus, if they want their assertions to agree with facts. It is not to be wondered at that walking or movement induces violent tubal peristalsis and consequent tubal colic in a tube filled and occluded with stinking pus. These women know that rest is the only thing that stops their hopeless tubal pain. To irritate the automatic menstrual ganglia into action in a pus tube, is generally a half to two hours of fateful agony. One of the best proofs that tubal peristalsis is premenstrual pain, is that that the pain is periodic, or worse at menstruation. When the automatic menstrual ganglia are at their climax of activity, the tubes are most active in motion. They are most congested, and adding new secretions to the already pathological one. These new secretions only intensify the irritations and increase the tubal peristalsis which simply adds agony to suffering. However, in these diseases the automatic menstrual ganglia work their own destruction. They are over-excited by irritative secretions, and in this over-excitement and super-peristalsis of the tubes the

muscular walls are rapidly dilated (by action and pressure of new-formed tissue), until the muscular layers are too thin or too much destroyed to respond to the ganglia, and thus the tubal colic loses some of its acuteness. The woman then becomes a real invalid, instead of a really acutely sick woman. It would be hopeful if the woman with diseased tubes could look for her deliverance from misery at the menopause, when the automatic menstrual ganglia will cease their temporary functional activity, but this she cannot always do, from the very fact that the disease has for years involved the contiguous tissue and organs. The disease has boldly progressed into fields foreign to the tubes, and left the woman with a damaged organism which no menopause can remove, and the head and front cause of tubal disease is gonorrhœa—a present spreading luxury of modern refined civilization.

MEDICAL PROGRESS.

CAPACITY OF THE SPINAL CANAL.—The results of certain experiments undertaken by Professor Reid and Dr. Sherrington, with a view to determining the result of position on the capacity of the spinal canal, are related in the last number of *Brain*. The plan of experiment was as follows: After trepanning over the vortex close to the longitudinal sinus, the dura mater was removed to an extent corresponding with the trepan hole. Water was then poured into the subdural space until it filled it, and a glass tube was next secured in the hole in a perfectly watertight fashion, a thin membrane which floated on the water filling the subdural space, having been previously drawn over the end of the tube.

A piece of glass tubing was connected with the other tube by flexible water-tight joints, the farther end of this tube being on a level with the trepan hole in the skull. Finally, this tube and its connections were filled with water and its free end projected over the scale pan of a sensitive balance, the other arm of which had a recording apparatus marking a revolving cylinder attached to it. The cadaver was suspended by means of an iron coronet, and variations in position were with the aid of a horizontal bar from the vertical stand on which the body was hung. The conclusions arrived at are that the capacity of the cranio-vertebral canal is at its maximum when the body is hanging freely and vertically, that there is diminution in this capacity when the weight of the trunk and limbs is taken off, and also when the vertebral column is bent backward or forward. In other words, it is found by this method of investigation that the alterations in the curvatures of the spinal canal by various movements do influence the capacity of the canal, but not to any great extent. This variation is found to be greater in the child than in the adult. The authors conclude by remarking that this increase is so small that it becomes difficult to conceive how in the suspension treatment for cases of tubes there can, as has sometimes been claimed, be any actual stretching of the spinal cord.—*Lancet.*

A NEW METHOD OF DRESSING THE CHEST IN PNEUMONIA, PLEURISY, PLEURODYNIA, ETC.—Apply the dressing on a large scale, in the same way that we now dress abrasions, bruises, etc.

If there is to be any cupping or other preliminary operation, have that attended to; then all the ingredients wanting are pure collodion and absorbent cotton in smooth layers, and a good broad brush, like mucilage brushes.

Apply a very thin layer over the side affected from spinal column to sternum, and secure it with collodion smeared thoroughly over it. Then go on with thick layers, securing them with collodion until a good padding is obtained, paying particular attention to the edges. In double cases you can act accordingly. The advantages are:

1. The one dressing, if well applied, will last throughout the case, and so,

2. The fatigue and discomfort of frequent poulticing are avoided.

3. The side, in single cases, is held as in a splint, while the free side does the breathing. A first-class non-conductor is covering the chest. I am not sure but that the contracting collodion may have some influence in controlling the blood supply.

4. There is no particular interference, in one who has a good ear, with physical examination. May be it would be a good thing if there was; for, once having made the diagnosis, what is the use of exhausting the patient every day by trying to find out whether one-eighth of an inch, more or less, is involved? The general symptoms will tell that.—*Arch. of Gyn. and Pæd.*

INFECTION THROUGH THE SOIL.—The question is often raised whether there is any direct or indirect proof of the infectivity of the bodies of those dying from specific fevers, or whether the soil of graveyards may become really dangerously contaminated thereby, but it is also one to which comparatively little attention has been given by the experimentalist. One aspect of the matter has been lately studied by Dr. Justyn Karlinski, of Konjica, Herzegovina, in a series of experiments (*Centralblatt f. Bakteriol.*, ix, 13) undertaken to determine whether the organs of the body undergo any change in temperature during the natural process of decomposition after burial in the earth, and especially whether any differences in this regard are to be met with in the case of infected subjects. His results show

that invariably the putrefactive process is accompanied by a rise of temperature above that of the circumjacent soil; and also that this rise in temperature is markedly higher when the parts examined have been taken from the bodies of men or animals who have succumbed to infective diseases than it is in the case of healthy bodies. He further examined into the question of the survival of the pathogenic bacteria in the affected parts, and states that the typhoid bacilli may retain their vitality in the decomposing spleen for three months, and are only completely annihilated by rapid putrefaction and the presence of a large number of the bacteria of putrefaction. Dr. Karlinski says that he had previously shown that typhoid bacilli could retain their vitality for a period of five months in soil, but that if the earth were thoroughly saturated with rain water they were destroyed in from seven to fourteen days. The part played by the soil in the origin of epidemics should not, he thinks, be under-estimated, since typhoid bacilli can only exist in water a comparatively short time.—*The Lancet.*

A MOTHER'S RESPONSIBILITY.—The child's doctor is daily impressed with the thought that there should be a special chair in every school for girls, for the purpose of accomplishing a mild degree of training in the direction of maternal duty. The innocent ignorance of mothers has much to do with occasioning disease in their children. Allusion is not made now to the neglect of hygiene, but to the failure on the part of the mother to recognize that she has in her child a bundle of nerves far more sensitive than her own. How often we see children that are fed and immediately afterward trotted and churned to the point of complete indigestion, and when discomfort results, they are given more of the same treatment. An incident noticed to-day in the round of practice, reminds me that even among those seemingly intelligent we find errors of this kind committed. The mother of the little one to whom we were called, backed up by her grandmother, insisted that when the baby, after nursing heartily, evidently had wind upon its stomach, that shaking and trotting upon the knee would assist in its relief. When asked how she would like it if, after being overfilled with food, some one eight or ten times as large should take her and pound her up and down with a view of adding to her comfort, she realized the point that was made. She is not the only mother, and grandmother as well, who though well informed in other directions, is ignorant of the fact that babies are but miniatures of ourselves: that their feeding should be systematic; the proper material given and the quantity not too much but just enough, and that immediately following the meal, a restful position is preferable to excitement and exercise.

In the infant, regularity of feeding and restfulness after feeding should be insisted upon. We started out to draw attention to the failures of mothers to pay due respect to the nerves of their offspring, not only in infantile life but all during child-life. Abruptness, harshness, fretfulness and irritability upon the part of the mother will beget the similar conditions in the child, and how often have we seen the little one punished for following the example set by its mother.

What a pity that the strong-minded women of the world do not centre their intellectual efforts toward the education of the mothers of the land in the direction of the better care of their babies. Unfortunately, excessive intellectual development on the part of woman not only takes her away from the field of fruit-bearers herself, but also develops her taste for things foreign to her nature. The problems connected with social life and the home might be elucidated for the general good, if these great women thinkers and workers did their duty; but maternity, domesticity and wifehood seemingly are farthest from the consideration of these metal amazons. Suffrage, statecraft and teetotalism seem more to their tastes. They forget, apparently, that which tends much to the good of the world is expressed in the lines that

> "Let man rule the world, 'tis nature's plan;
> While woman, by her sweetness, governs man."
>
> —*Medical Mirror.*

PATHOLOGY OF GRIEF.

That severe mental distress or fright sometimes produces physical disease, and occasionally even death, is an admitted fact, although the way in which it acts has hitherto been but little studied. In order in some measure to supply the deficiency in our knowledge regarding this matter, Dr. G. Bassi has recently made a number of observations on animals which apparently died in consequence of capture. Birds, moles, and a dog which had succumbed to conditions believed by Dr. Bassi to resemble those known amongst human beings as acute nostalgia and a "broken heart" were examined post-mortem. Generally there was hyperæmia, sometimes associated with capillary hæmorrhages of the abdominal organs, more especially of the liver, also fatty and granular degeneration of their elements, and sometimes bile was found in the stomach with or without a catarrhal condition. The clinical symptoms were at first those of excitement, especially in the birds, these being followed by depression and persistent anorexia. The theory suggested by Dr. Bassi is that the nervous disturbance interferes with the due nutrition of the tissues in such a way as to give rise to the formation of toxic substances—probably ptomaines—which then set up acute degeneration of the parenchymatous elements similar to that which occurs in consequence of the action of certain poisonous substances such as phosphorus, or to that met with in some infectious diseases. In support of this view, he points out that Schule has found parenchymatous degeneration in persons dead from acute delirium, and that Zenker found hæmorrhages in the pancreas in persons who had died suddenly; he refers also to some well-known facts concerning negroes in a state of slavery and to the occasional occurrence of jaundice after fright.—*The Lancet.*

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The Board of Trustees shall have full discretionary power to omit from the published *Transactions*, in part or in whole, any paper that may be referred to it by the Association, or either of the Sections, unless specially instructed to the contrary by vote of the Association.

NE TENTES AUT PERFICE.

It is apparent, to even the careless reader of the daily papers, that medical topics are receiving vastly more attention than ever before. It is even hinted that many large daily papers have a medical man on their regular staff; if such is the case they have generally succeeded in concealing the fact by displaying a phenomenal ignorance regarding medical subjects.

We clip the following from a prominent Chicago daily, whose medical department has lately occupied itself in exploiting Dr. Keeley's cure of inebriety, and the Shurly-Gibbes method of treating consumption as exemplified in the practice of a young Chicago physician:

A recent article in *The Tribune*, based on "Lagrange's Physiology of Bodily Exercise," explained the philosophy of the process by which great suffering or death follows undue exercise of the muscles in man, horses, and other animals. It is a fact amply demonstrated by the scientific physiologists that every exhibition of muscular force is accompanied by a disintegration of tissue, the quantity of matter thrown off being proportional to the amount of exertion. This material is carried by the veins to the lungs, where it combines with inspired (inbreathed) oxygen to form carbonic acid gas and is then expired into the atmosphere. If that effete matter be supplied to the lungs faster than it can be taken up by the oxygen, the uncombined portion acts as a poison. The effort of the system to get rid of it before succumbing to its deadly effects manifests itself in what is popularly known as "shortness of breath," though this is a misnomer, the difficulty experienced being not in filling the lungs but in getting rid of their contents. The greatest muscular exertion of which man or horse is capable furnishes this poisonous matter at least twice as fast as it can be thrown off immediately. If the action be brief the system soon finds relief, but if too long continued the poisonous accumulation becomes greater and greater till at last the animal succumbs and drops dead on the track—suffocated in the gas created by over-exertion. It is poisoned just as truly and as effectually as if it had taken a dose of the most deadly drug known to the chemist, or had breathed marsh gas or carburetted hydrogen gas.

While we must commend the article as a whole, leveled as it is, at a grave and unnecessary cruelty, we can but smile at the ponderous editorial cerebratim that emitted the above physiological doctrines.

THE BACTERIA DESTROYING SUBSTANCE OF THE BLOOD.

In a preliminary communication M. OGATA, of the Hygienic Institute of Tokio (*Centralblatt fur Bakteriologie und Parasitenkunde*, May, 1891), refers to some of his earlier researches upon the effect of the blood of certain species upon the bacillus of anthrax and mouse septicæmia. At that time he was unable to say what substance was contained in the blood of these animals which conferred the special power over these particular bacteria. For some time he has been experimenting with reference to this subject, and he is at last able to announce that he has discovered in dog's blood a substance that confers immunity.

This substance is obtained by a chemical process similar to that employed for precipitating complex proteids, and is called a "ferment" by the writer. We give his conclusions:

The substance is readily soluble in water and glycerine, but not in ether or alcohol, though the latter do not destroy its action. Its power is not affected by weak alkalies, but is by carbolic and hydrochloric acid. Its properties are destroyed by the digestive juices, and by heating to 45° C. The substance has decided "immunizing" as well as disinfecting properties, that are retained for a long time in a glycerine extract. It does not convert fibrin into peptone, nor starches into sugar.

EDITORIAL NOTES AND ITEMS.

A UNIQUE CASE.—We extract the following from the last issue of the *British Medical Journal*: "A nice point of law has lately been debated before a French court. The question was whether an operation on a dead body by an unqualified person came within the meaning of the enactment forbidding the illegal practice of medicine. It appears that a pregnant woman had just died, the cause of death not being stated. The curè of the village, who had been with her in her last moments, induced a neighbor who was in the room to perform Cæsarean section on the corpse with a view of saving the child. The operation was successful, but the operator was brought before the magistrate and fined 15 francs for having been guilty of illegal practice of medicine."

ANOTHER CASE OF HYPERPYREXIA.—In this Journal of date March 21st, 1891, appeared the report of a case of hyperpyrexia by Dr. Galbraith, of Omaha, Neb., and now we learn of another case equally quite as unaccountable, and which was reported at the May meeting of the Memphis Medical Society by Drs. Jones and Sale. The patient was a girl fourteen years of age, of bright and happy disposition, of good family, and "thoroughly trustworthy." There does not seem to be any chance or object for deception, the readings being taken in full sight and with the clothing removed. The mouth, axilla and rectum were the parts tested by numerous thermometers, and a considerable number of observations were made. No less than eight thermometers were broken because not admitting of a sufficient expansion of the mercurial column. An instrument was ordered which would register as high as 150° F. Observations with this thermometer showed normal, then 115°, subsequently 135°, and still later 150°. After this it was placed in the axilla, when the expanding mercury destroyed the instrument. The rise in temperature is of but short duration. Altogether the case is striking, and does not at present admit of an easy solution.

THE ASSOCIATION OF GERMAN ALIENISTS will meet at Weimar on September 18 and 19. Among the questions to be discussed are the following: "Prophylaxis of Tuberculosis in Lunatic Asylums," "Responsibility and Criminality," "Drunkenness in Relation to Responsibility," "The Present Condition of the Aphasia Question," "Care of Epileptics," "Employment of Hypnosis in Lunatic Asylums."

JEWISH IMMUNITY TO CANCER DENIED.—B. W. Richardson (Asclepiad) denies the statement recently put forth of an almost, if not total, immunity of the Jewish race from cancerous affections. This observer has had no inconsiderable number of cancerous cases in Jews under his care, and found no noteworthy difference in the occurrence of the disease. Tuberculosis, however, he maintains is, according to his observations, much less prevalent in Jews than in Christians.

ENGLISH ESTEEM FOR AN AMERICAN PHYSICIAN.—Very outspoken expressions of esteem are observed in the English medical press regarding the late Dr. Fordyce Barker. Dr. Barker frequently visited upon the other side of the Atlantic, and always had an earnest welcome in the conferences of the first medical bodies in England. His worth was fully appreciated, and his nobleness and geniality recognized.

SENN'S METHOD OF INTESTINAL ANASTOMOSIS.—At the Surgical Clinic of Tuesday, June 23rd, at Rush Medical College, the spectators had the first opportunity during Prof. Senn's present incumbency of observing the operation for the production of an intestinal anastomosis between the lower part of the ileum and the transverse section of the colon, thus severing from the fecal circulation the ileo-cæcal portion of the gut. The operation was done for the relief of malignant disease involving the head of the colon,

Senn's method, by means of the longitudinal incision and the employment of the decalcified bone plates, was used. The operation, together with Parker's exploration of the post-cæcal region, and all of which was conducted by easy stages, required about one hour and twenty minutes, and was highly interesting throughout.

SOCIETY PROCEEDINGS.

Pennsylvania State Medical Society.

Forty-first Annual Session.

The society met at Reading, June 2d to 5th, there being over 300 delegates present from all parts of the state. The annual address by DR. ALEX. CRAIG, the president, was devoted to the consideration of the changes which have occurred since the organization of this body at the same place in 1849. At the present session, the incorporation having been accomplished, it now met as an incorporated body. The delegates in many instances came in stage coaches and numbered from nine counties. He alluded to the recent failure of the effort to obtain from the State Legislature a law to create a Board of Medical Examiners. All others are protected by law except the doctors.

Over 2,000 copies of the Transactions are distributed yearly, the cost being defrayed by an assessment upon each county society. A committee was appointed to aid the committee on the Rush monument of the American Medical Association, of one from each county.

The address in medicine by DR. J. C. LANGE, of Pittsburgh, was devoted to

THERAPEUSIS: NEW REMEDIES AND THEIR USE BY THE PROFESSION.

He alluded to the present method of forcing the many proprietary remedies upon the market, the obtaining of certificates and the ethical question connected therewith. The delusions of condurango, chian turpentine, kairine, the antipyretics, etc. The latest, called by an unscientific name, capitalized with thousands of dollars, is alleged to be fraudulent and to consist of an amelide and bicarb. of soda. Yet the medical journals are liberally supplied with commendations of it as an analgesic, antipyretic and anodyne. Indeed, a professer of therapeutics, during the last winter, dwelt upon it in his lectures in such a manner that students were in doubt, so wide was its usefulness, as to which deserved first rank, this or opium. Nothing succeeds like success, hence the advertiser invites us to call at his works and supplies us with knives, blotters, etc. He alluded to the value of the certificates printed, etc.

DR. A. B. BRUMBAUGH, of Huntingdon, delivered the

ADDRESS IN HYGIENE,

which forcibly depicted the errors so constantly found in homes, etc., in the sanitary surroundings, leading to diphtheria, typhoid, etc.

A paper by DR. BATTEN, Pittsburgh, on

TAPE WORM,

was devoted to that form originating from the use of raw or poorly-cooked beef, this being the form most frequently encountered. His treatment was the use of the oil of turpentine, tablespoonful doses, after a light meal. In one case he ordered fasting for a week and the use of vinegar in quantities as much as could be drank. Another took the pumpkin seeds with turpentine, fasting. In each the worm was expelled and a cure followed. He then alluded to the use of kameela, and male fern, chloroform, cocoanut, etc., regarding these equally good, sometimes requiring a variation, according to results. A spirited discussion followed, showing the tænicides to be much less limited than had been believed.

A very interesting paper by DR. CLEAVER was entitled

THE HISTORY OF THE MEDICAL PROFESSION IN BERKS COUNTY.

The report of the Legislative Committee gave some idea of the intricate mazes to be threaded by those who endeavor to obtain legislation for the benefit of the profession, the bill having passed after numerous amendments in the upper house, only to be killed by the efforts of the irregulars and others who pretended to oppose "class legislation." In spite of this the society determined to persevere, and the committee was continued this year, the legislature not meeting till 1893, to work up the profession throughout the state, so that in the next effort the support would be more earnest and beneficial.

DR. J. M. ANDREWS read a paper on

SUBACUTE PLEURITIS.

He believed that a single full dose of antifebrin would abort some cases. In a cachectic case, digitalis is useful. Quinine is of great value. Effusion occurring, what is to be done? We must limit or arrest the effusion, and when present, remove it. Combat the inflammation, rub in iodine freely on the chest, eschew blisters, poultices, and the like, as they increase the amount of fluid. Absorption may occur unless the proportion of leucocytes is great. Arterial sedatives are injurious. So with antipyretics after the effusion. Quinine is of great value; 2 grains every three hours, till the temperature falls. The removal of the effusions important. Diaphoretics are objectionable, they depress too much, especially jaborandi. Iodide of iron is

the best remedy to promise absorption, 10 drops with 5 grains of iodide of potash every four hours. Under this in twenty cases, aspiration was needed only in four. How long shall we wait? Don't delay more than one week. That is from the time the temperature has reached normal. In paracentesis draw off half a pint, repeat every second day till absorption has rightly commenced. This allows the compressed lung to expand gradually. It obviates the dangers of congestion, œdema, albuminoid, expectoration, cyanosis, etc. During convalescence, assist the expansion of the lung, improve general health. Change of air, tonics, as from oxygen and good diet. Deep inspirations to aid the complete restoration of the lung, exercise and light gymnastics follow, and if needed strychnia, electricity, etc.

DR. W. F. WAUGH, of Philadelphia, read a paper on the

TREATMENT OF TYPHOID FEVER WITH THE SULPHO-CARBOLATE OF ZINC,

claiming most excellent results from the history of many cases.

DR. HIRAM CORSON, of Norristown, Pres. of this society in 1852, had a resolution passed urging the appointment of a woman on the Board of Public Charities. A committee was appointed to urge this upon the Governor of the State.

Wednesday afternoon was devoted to consumption. DR. T. J. MAYS, of Philadelphia, read a paper the *Contagion, Theory and Treatment*, and DR. HUGH HAMILTON, of Harrisburg, on the *Physiological Behavior of Koch's Remedy*. Papers in discussion were read by Drs. C. W. Dulles, of Philadelphia, W. T. Bishop, of Harrisburg, L. H. Taylor, of Wilkesbarre, and others. The argument seemed rather opposed to the benefit of Koch's lymph and the contagion theory.

DR. FLICK, of Philadelphia, insisted strongly that certain houses became centres of this disease, and quoted his former paper on the 5th ward of Philadelphia, which he had so thoroughly investigated. Much interest was shown by the entire body in this discussion.

DR. O. H. ALLIS, of Philadelphia, read the

ADDRESS ON SURGERY,

giving problems in surgery in a conversational way. He spoke of the impropriety of Choparts, Pirogoffs, of similar operations as rendering the leg nothing but a peg leg, not useful for running, or the employment of an artificial leg, in short he insisted that in all such cases amputation should be below the knee so that a leg might be applied on which the patient could walk, run, in short being equal to the real leg. He suggested the idea of endeavoring to unite the ends of divided arteries, perhaps the insertion of a joint when the joint anywhere was destroyed, the cutting out of a portion of bone to permit the suturing of nerves, where otherwise the union could not be obtained, the resection of the fibula when false joint of the tibia occurred, illustrating his address by excellent diagrams and calling down the house, when he had concluded, by his masterly and convincing way of talking. The surgeons present attacked some of his views, but all admired them.

DR. PRICE, of Philadelphia, illustrated his coincidence as to the amputation below the knee by quoting and exhibiting his own case; he had an amputation just below the knee, and rode, mounting from either side, walked many miles on gunning trips, and emphatically declared that he would prosecute any one who would amputate his leg so as to leave a stump not suitable for an artificial leg. One objected that Chopart or Pirogoff operation was better for a poor man not able to buy an artificial leg and yet could shovel earth, etc., with a stump left as long as possible. Several railroad surgeons participated in this animated discussion and quoted their results in that kind of work.

DR. E. E. MONTGOMERY, of Philadelphia, read a paper on the

CONDITIONS FOLLOWING PARTURITION REQUIRING ABDOMINAL SECTION.

Formerly patients were permitted to die with large collections of pus in the abdomen. These could have been washed out and life saved. Now we know the value of vaginal and intra-uterine antiseptic washing. The curette has become of great importance to remove decomposing material, and then irrigate to render the cavity sterile. Mortality is thus greatly reduced, but when the disease has extended beyond the uterine mucous surface, peritonitis, metritis, salpingitis or ovaritis follow. Here abdominal section is imperative. We find often small ovarian tumors, these may be bruised or ruptured in parturition. Section enables their removal, irrigation, asepsis and safety.

Tubal disease, pus collections in the tubes, are reported, large fibroids; each aids to develop sepsis and death. Retention of the placenta, in part or clits, will produce sepsis. He related many cases to prove how readily the operation could be done, and its sure value.

In abscess of the uterine walls, he prefers extirpation of the uterus. He did not urge the section in every case of sepsis; he would first determine with great care the avenue of the poison to enter the system—as in a case, where there was abdominal sensitiveness, after a very difficult labor, temperature 103°, ether was given, and search revealed a laceration through the peritoneum into the rectal septum. A profuse, extensive lochia was discharged. The tear extended to the ischial tuberosities, and on the left into the broad ligament. No incision here was deemed

necessary, the sutures were removed, thorough irrigation performed, and the wound treated as an open one. Temperature subsided, but the next day rose to 106°, when she was placed on a blanket, wrapped in a sheet wrung out of ice-water, bathed in ice-water, given 10 grs. of acetanilide hourly for three doses, followed by rapid convalescence.

In sepsis he urged careful examination as to the avenue, and its elimination.

If no vaginal or vulvar laceration, dilatation of the uterus, curetting the cavity, and irrigation.

Accumulation in the pelvis, etc., the prompt opening of the cavity, removal of diseased organs, irrigation and drainage.

Where no cause is found in the pelvis, curetting, etc., have no influence. An exploratory incision will determine whether small pus collections in the organs serve as centres of poison. Even puncture the ovaries, as it, with the antiseptic knife, will not harm. Remove the uterus where its walls are abscessed. Remove promptly fibroids in the uterine walls. If there has been reason to suspect the presence of small dermoid or other ovarian cysts, and their injury in parturition, section is indicated urgently.

Drs. J. M. Duff, Pittsburg; M. Price, Philadelphia; John C. DaCosta, Philadelphia, and others, differed greatly, some counseling prompt action, others showing a conservative spirit, and detailing cases where good results followed, even in apparently desperate conditions, though section had not been practiced.

The next paper was by Dr. Edw. Jackson, Philadelphia,

WHAT TO DO IN INCIPIENT CATARACT,

taking the ground of operating when the opacity had become such that vision was obscured, and showing instances where delay had not proved objectionable, as well as the regular treatment which he had found of benefit in the early stages.

Dr. J. A. Lippincott, Pittsburg, read the Address in Ophthalmology, dwelling on contagious ophthalmia as so often seen in orphan homes, etc., and the danger of the indiscriminate use of towels, etc. A Committee on Contagious Ophthalmia was afterwards appointed, with Dr. Lippincott as chairman.

Some time was devoted to the amendment of the By-laws, as in the articles of incorporation certain points had not been considered, and after this session it required all changes to lie over for one year.

The Address on Obstetrics was by Dr. J. M. Duff, Pittsburg, who reviewed the year's work in this department.

Asepsis, although so important, was still ridiculed by some, or performed in a careless way, with bad results. A 2 per cent. solution of creoline seems to have preference, in intra-uterine uses, or a 3 per cent. of lysol, while many laud the use of benzine as a safe and powerful germicide. The sulphate of copper in 1 per cent. solution is quoted as not being followed by a single case of septicæmia. No poisoning or bad results were seen. Roberts thinks it aids involution. Peroxide of hydrogen in a few cases has led to its being highly prized. The immediate repair of lacerations is aseptic, and prevents later troubles.

The imperforate dressing of Garrigues is indispensable.

Menstruating nurses are not necessarily dangerous, unless wanting in cleanliness. A putrifying funis may infect both mother and child.

Puerperal fever, owing to asepsis, is much decreased.

Septicæmia is now puerperal infection. Sapræmia affections are amenable to treatment, are caused by the alkaloids of putrefaction from retained placenta and clots. Septicæmia diseases are virulent, produced by direct absorption, probably from ptomaines. Curetting the womb is urged and devoid of danger. In suppurative peritonitis, abdominal incision and immediate washing out and drainage. In severe flatulence, the trocar is recommended.

Eclampsia: Albuminuria is a causative—eliminate and give chloroform, 10 to 20 drops in water before meals. Urine will increase and albumen diminish. The wet pack is a prophylactic. Veratrum, hypodermically, acts well.

Placenta prævia is diagnosed by palpation. Untoward symptoms require prompt delivery by Braxton Hicks' method.

Post-partum hæmorrhage is treated by tampon of iodoform gauze, and hydrastin and hypodermic injections of caffein in benzoate of soda. Kochs inverts the uterus, puts an india-rubber band around the neck of inverted part, a few hours after removes the band, reduces the inversion, gives ergot and kneads.

Rupture of uterus requires laparotomy.

Ectopic pregnancy is more frequent, once in 500 pregnancies. Electricity, removal as soon as known, are each advocated by good authority.

In abortion nothing new is said.

Electrolysis, cellulitis, contracted pelvis, were each treated.

Fluid extract of galactaga was highly vaunted as a galactagogue, and antipyrin as in opposition.

Mammary abscess is not always to follow cracked nipples.

The whole paper teemed with matters of interest, and was enriched with a full bibliography.

Dr. S. Solis-Cohen addressed the Society on "Patent Medicines and the Newspapers."

Dr. C. R. Earley, Ridgway, spoke on "Catarrh," and gave an interesting account of the medication, etc., of the olden time.

Dr. J. Aulde, Philadelphia, spoke on the "Therapeutics of Euphorbia Pilulifera."

The Society closed this, one of its most interesting and successful sessions, on Friday, by the selection of the following officers: President—Dr. S. L. Kurtz, Reading; Vice-Presidents—Dr. J. B. Roberts, Philadelphia; Dr. H. G. McCormick, Williamsport; Dr. H. H. Whitcomb, Norristown; and Dr. I. C. Gable, York; Secretary—Dr. Wm. B. Atkinson, Philadelphia; Assistant, Dr. C. W. Dulles, Philadelphia; Treasurer—Dr. G. B. Dunmire, Philadelphia, and Censors for the thirteen districts and delegates to the American Medical Association, etc. Next place of meeting, Harrisburg, third Tuesday in May, 1892.

The Address in Medicine for 1892, Dr. J. H. Musser, Philadelphia; in Surgery, Dr. T. D. Davis, Pittsburg; in Obstetrics, Dr. H. G. McCormick, Williamsport; in Mental Disorders, Dr. J. W. Phillips, Clifton; in Hygiene, Dr. A. A. Woods, Erie; in Otology, Dr. G. R. Rohrer, Lancaster.

Drs. C. G. Loose, W. T. Bishop and T. M. Livingston were appointed a delegation to the State Pharmaceutical Association.

Philadelphia County Medical Society.

Stated Meeting May 29, 1891.

THE PRESIDENT, JOHN B. ROBERTS, M.D., IN THE CHAIR.

DR. FRANK WOODBURY submitted a paper on

NITROGEN-CONTAINING FOODS AND THEIR RELATIONS TO MORBID STATES.

In connection with the paper of the evening, by Professor Chittenden, upon the "Food-value of Beef-preparations," I have been invited by the Honorable Board of Directors to contribute a few remarks upon "Nitrogen-Containing Foods and their Relations to Certain Morbid States." Under the circumstances, it is proper that what I have to say shall be made as brief as possible.

At the outset, our attention is drawn to some fundamental physiological facts which must be kept in mind during the discussion of this subject. The human body is now regarded as a unit composed of an aggregation or community of cells. These anatomical elements differ from each other in some respects, but agree in this: each cell consists of two parts, one living and one non-living, corresponding with cell-nucleus and formed material. What is visible to us is the non-living part, or the formed material; the real living part of the organism is hidden from view. Just as in vegetable tissue, the parts that are permanent and solid are composed of the cell-walls, which may remain long after the essential living part or protoplasm of the wood-cell has dried up and disappeared—in a similar way, in the human subject, the various organs and tissues which give it form and substance are not living; the only part exhibiting vital phenomena is the soft, shapeless, and colorless cell-nucleus, consisting of protoplasm or bioplasm. This living substance, in its chemical composition, resembles the various tissues, varying somewhat according to function, but it contains one essential ingredient which is so characteristic as to confer its name upon the whole class—this element is nitrogen. The celebrated dictum, "Without phosphorus, no thought," might be paraphrased "Without nitrogen, no life." Viewed from the physiological standpoint, the name "Azote," applied to this element by Lavoisier, appears remarkably inappropriate.

As a necessary constituent of the tissues, therefore, nitrogen, in a state of combination, is always present in the human body. Since it is found in considerable quantity and in various forms in the excretions, some two or three hundred grains being discharged daily by the kidneys alone, besides what is lost by the intestinal tract and the skin, it is evident that in order to maintain life the supply must be kept up from outside sources. There are two principal directions in which we may look for the supply of nitrogen, 1, the atmospheric air, and 2, the food.

Although the atmospheric air contains about 80 per cent. of nitrogen, we may dismiss this at once as not available, beyond a very limited extent. Experiment has shown that it is not consumed or absorbed in the act of respiration; but a certain amount of air is always swallowed with the food and passes into the stomach, where it may become absorbed by the gastro-intestinal mucous membrane. It is possible that a small quantity is introduced by this channel, especially since it has been demonstrated that a moderate amount of gaseous nitrogen is excreted or exhaled by the skin.

Nitrogen-containing food must, therefore, be regarded as practically the only source of the constant supply of nitrogen which is so essential to the maintenance of the body in a normal condition. In fact, due attention has already been given to this by Liebig, Fick, Wislicenus, Parkes, Pavy, Flint, and others; and the proper relation of the two great divisions of proximate principles of organic origin, the nitrogenized and the non-nitrogenized, have been pretty closely determined. As their results are to be found in all the text-books, I will not refer to them in detail. I may remark, however, in passing, that from the clinical standpoint there appears to be a fallacy underlying all these calculations of dietaries, where food values are expressed in grains of nitrogen and carbon, inasmuch as no allowance is made for waste; the entire quantity ingested is supposed to be digested and assimilated. In

practice we know that the feces contain considerable nitrogen, which is not excretory, properly speaking, but represents the excess of consumption, part of the food having escaped digestion. In nursing infants the feces consist largely of undigested casein. Even adults are not able to entirely digest milk, and if so simple an article of food as milk is not completely assimilated, what warrant have we for assuming that the nitrogenized constituents of peas and beans, or of animal tissue, will yield their full equivalent of potential force to the organism? On the contrary, we know it to be a fact, that much foodstuff passes through the alimentary canal without having its proximate principles extracted by the digestive organs and the absorbents.

We may, however, both clinically and by physiological experiment, making due allowance for personal equation, determine with sufficient exactness the kinds and proportion of different foods required to maintain the body in a normal condition. Proceeding on the same lines, we may discover the effects of an excess, actual or relative, of nitrogen; or, on the other hand, we may ascertain the results of deprivation, either partial or complete. We may also be able to see some therapeutic applications of the knowledge thus gained.

From the time of Hippocrates, and even earlier, it has been known that health and disease are largely influenced by food, and the effects of an animal diet are different from those of a diet exclusively of vegetables. A distinction was even made between leguminous and other forms of vegetable food. It was not until our day, however that the practicing physician possessed sufficient knowledge of the chemistry of food and of metabolism in health and disease to enable him to direct the diet of his patients upon scientific principles. Following the definition given by Hippocrates: "Medicine consists in addition and subtraction, the addition of the things which are deficient and the subtraction of those things which are redundant; he who practices this is the best physician, but he whose practice is farthest from it is the farthest removed from a knowledge of the art"—we can now prescribe viands suited to a deficiency of nitrogen in the system, or substitute others if there is an excess. To the therapeutic aspect of the subject I will now very briefly ask your attention.

Taking up the latter instance first, we find that a diet poor in nitrogen is useful in several forms of rheumatism, in gout and in lithæmia, and also in recurring attacks of biliousness and bilious headache. Scurvy appears to be caused by an absolute, as well as a relative, excess of nitrogen in the food, and I have seen it caused by the use of an excessive amount of fresh meat among children in an orphan asylum. In its treatment, vegetable food relatively poor in nitrogen is usually employed. Some skin diseases, possibly of lithæmic character, are only to be cured by withholding nitrogenized food. It seems possible that a liberal use of meat in the diet may have some connection with the development of cancer, a disease which appears to be on the increase, as was pointed out by Dr. R. A. Cleemann, of this Society, in his "Address on Hygiene," delivered before the Medical Society of the State of Pennsylvania a few years ago. Dr. W. Mattieu Williams, in a little work on the "Chemistry of Cookery," pointedly directs attention to the large consumption of meat as a cause of various forms of cancer. In families where a hereditary tendency of this kind exists, it is possible that it might be overcome by vegetarianism. Some nervous affections, notably epilepsy and chorea, are greatly benefited by abstention from meat in the food.

Owing to the writings of Roberts, Fothergill, and others, a causative connection between a diet rich in nitrogen and some forms of kidney inflammation or degeneration is now generally recognized. And in the treatment of the various forms of Bright's disease, attention to the diet is generally admitted to be of prime importance. There is a widely-spread opinion that nitrogenized food is favorable to the occurrence of inflammation, and for this there seems to be a scientific foundation. Parkes has shown that a non-nitrogenized diet causes lowered blood-pressure and diminished arterial tension. Meat, therefore, is ordinarily prohibited under the antiphlogistic treatment, as it was formerly called. In acute inflammations of mucous surfaces, especially in plethoric subjects, the use of animal food is usually forbidden. This should not be applied too strictly, however, for in some cases of subacute or chronic character, a generous and nourishing diet is necessary.

On the other hand, nitrogenized food may be prescribed where there is, from any cause, a deficiency of albuminous principles in the blood, for example, in anæmia or chlorosis. In phthisis, this condition is sometimes quite marked and good results have been obtained from the "beef and hot-water" plan of treatment, and also from the use of fresh bullock's blood, or hæmoglobin, which requires less digestive capacity and is more easily assimilated than muscle-tissue.

Children frequently suffer from a deficiency of nitrogen. Where an infant is reared upon condensed milk entirely, the limbs are plump but the tissues are flabby, on account of anæmia. Such children are late in getting their teeth, and have little power of resistance against disease. The addition of oat-meal, barley or rice to the milk will often bring about marked improvement and may prevent the development of rickets. Just here I might stop to point out the fallacious character of some of the arguments based upon the

comparative chemical composition of woman's milk and other foods. Leeds found in a number of specimens of woman's milk that the nitrogenous constituents varied from 4.86 to 0.85 per cent. So that one specimen of mother's milk may have six times the amount of albuminous material contained in another.[1] This shows the necessity when the child does not thrive at the breast, of examining the milk to find out if it be deficient in nitrogenized constituents. If so, the addition of beef, meal, bovinine or other nitrogen-containing food in an easily-assimilable form is advisable.

Eczema in infants, or in sewing women, is often traceable to a deficiency of nitrogen in the food, and Dr. Rohè, of Baltimore, advises the addition of meat-broth and eggs to the diet as an essential part of the treatment. Similarly, in many syphilitic eruptions upon the skin, in broken-down subjects, good food is a necessary preliminary to any specific treatment. Neurasthenia and atonic dyspepsia, which are so often associated in the same patient, especially if he is at the same time anæmic, can only be relieved by nitrogenized and fatty food, administered in a form easy of assimilation and at comparatively short intervals. On the other hand, in diabetes and in obesity, the diet may be largely nitrogenous, but in this case it is because there is a desire to reduce the carbo-hydrates and not because an excess of nitrogen is particularly sought after.

To return to the children, I wish to call attention to the fact that during the period of growth and development, more nitrogen is needed than after the body has assumed its full stature. Hence, school-children should have a due allowance of meat, and should be encouraged to eat oat-meal, corn, beans, peas and other vegetables known to contain this valuable constituent.

In the foregoing brief *résumé* of an important and interesting subject, I have not made any distinction between the nitrogenous, proximate principles of animal and vegetable origin. Chemically and physiologically they are nearly identical; but practically there are minor differences of palatability, digestibility, and relative utility, which, at present, our limits will not permit us to consider.

SCIATICA.—At the clinic of Prof. Landon Carter Gray, of New York (*Practice*, Feb., 1891), much benefit has been obtained in sciatica from phenacetin, given in tablets of four to eight grs. every three 8r four hours. There are a good many cases, however, which do not respond to it very markedly. Doubtless, too, there are many cases of sciatic neuritis, rheumatism, gout, etc., in which a diagnosis of sciatica is erroneously made; but perhaps more frequently sciatica is mistaken for one of these affections.

[1] Quoted by Starr in his "Hygiene of the Nursery," Philadelphia, 1888.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

The London Student and his Degree—Defeat of the Senate of the University—Sir Walter Foster on Political Powerlessness of the Profession—Severe Hail and Influenza—Professor Gairdner's Little Story.

The London student is at length to have a degree on "reasonable terms," the present standard being—as every one knows—especially in preliminary scientific subjects, absurdly high. London enjoys the unique position of being the only metropolis in the whole civilized world that does not possess a teaching University. The Royal Commission of 1888, reported that the case for such a body had been made out. In fact, the want has been admitted on all hands, and a practical illustration of the evils of the present policy is ever-present in the steady exodus of London students to the provincial Universities. At length the Senate of the University, with the aid of the authorities of the Royal Colleges of the Physicians and the Surgeons so far threw off their slough of slumbering conservatism as to draw up a scheme for reconstitution. Defeat, however, has awaited their proposals on all hands. The provincial schools, which were practically ignored, at once raised the standard of revolt. The Council of the College of Surgeons had not consulted their members and fellows, who accordingly passed most adverse criticisms both upon the scheme and upon their Council on the first opportunity that offered itself. Lawson Tait, also, carried a resolution to the effect that the Society of Apothecaries ought not be excluded. The final blow was given at a meeting of the Convocation of the University, which threw out the proposals by an overwhelming majority. Nothing but a complete teaching scheme will satisfy the public and the profession. Some of the journals say in so many words that it is nothing but the instinct of self-preservation that has forced the London Senate to unbend so far as it has done. The spirit of reform, however, is abroad, and has invaded the precincts of these autocratic boards that have hitherto consulted no interests but their own, and have done their best to make close corporations of what should be national institutions.

One of the first men to call attention to the existence of such a thing as a democracy in the medical profession was Sir Walter Foster. In 1883 he made a famous speech as President of the Birmingham Branch of the Midland British Medical Association. In that address he pointed out the political powerlessness of the profession as a body, and thus started the wave of opinion that is now dashing against the outworks of various time-honored anachronisms. After twenty-three years service Sir Walter has just resigned his post as honorary physician to the Birmingham General Infirmary. Five years since he was elected direct representative on the General Medical Council, one of the greatest honors that could be conferred on a medical man in this country, and he is also a member of Parliament. On the occasion of his first entering public life he mentions that Sir Andrew

Clark wrote him a word of warning to the effect that "Medicine is a jealous mistress," to which he replied that the best antidote to jealousy was unbroken loyalty. Sir Walter added that in all his public life he never had, and he hoped he never should, lose sight of medicine, for he believed their profession was interwoven with the highest and best legislation and the future welfare of mankind. The latter appears to be very much the conclusion arrived at by most philosophical latter day thinkers, and may be otherwise expressed by saying that medicine is the most progressive, as it is the most comprehensive among the professions. After waiting all these centuries the outside world seems to be waking up to pretty much the same opinion. In England, it may be noted, public enthusiasm has not reached the length of making peers of the doctors; that honor, so far, is reserved for such people as soldiers, diplomats, bankers, brewers, and successful politicians. The claims of literature have long been conceded to be represented in the hereditary House. Medicine, however, has had only one representative, somewhere in the middle ages.

The severe winter is being followed by a late spring. Hail storms have been reported all over the country, varied with snow and sleet, and now and then a warm genial day is dovetailed into the midst of this backward season. The cold has had the effect of swelling the Registrar General's returns to a remarkable degree. In London alone there is an increase of 433 deaths above the average for the corresponding week in the last ten years. The deaths from diseases of the respiratory organs were 584, or 240 in excess of the average; of these 230 were attributed to pneumonia, 302 to bronchitis. Influenza reached the high figure of 148, or 21 in excess of the highest weekly number of deaths in the outbreak of 1890. The death rate of the Metropolis for last week has been 24 per 1000. In some of the provincial towns, moreover, the rate has been more than doubled. Durthe last three weeks, for instance, the following returns have been made from provincial towns; Sheffield, 57.8, 70.5, 59.3; Leeds, 27.9, 36.1, 48.3; Manchester, 29.8, 55.1, 43.6. A more intimate acquaintance with this mysterious disease brings the lesson that mortality is largely influenced by surrounding insanitary conditions. At the best of times Sheffield, which has suffered more than any other town in the present epidemic, is especially liable to affections of the respiratory organs. This is no doubt due to a great extent to its smoke-laden atmosphere and to the dusty workshops with which its staple hardware industries are necessarily associated.

The other day in Dublin, Prof. Gairdner revived a story that went the round in Edinburgh many years ago, and of which it may be said *Se non e vere, e ben trovato.* He asks whether it is better to test a harmless remedy by giving it all round, or to adopt the more scientific plan of giving it to one-half of our patients (reserving the other half as a control experiment). The story refers to the former method. "A lady, finding in her prescription something unwonted and, as she thought, uncanny, turned back to get a further explanation from the Professor, who by that time was fully occupied with someone else. But the man at the door was equal to the occasion. Taking the prescription into his hand he ran over it with a practiced eye, inured even to Latin formulæ by long and faithful service in a medical man's house. He returned the paper to the lady and showed her to the door with the remark "Ou aye, mem, its a'richt, they're a' gettin' that, the now." The Professor had been experimenting all round, more or less, with some of the more unwonted salts, such as titanium, cadmium, tellurium, palladium and so on, most of which turned out to be tonics, with the exception of one, which had the awkward peculiarity of causing the patient to shed abroad such a peculiar and disgreeable perfume or stink (if you will pardon the word) that it had to be forthwith abandoned." As Dr. Gairdner remarks, the anecdote did not detract from the world-wide fame of the Professor in question, nor was it known to have emptied his crowded waiting rooms to any great extent. D. W.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

With the June meeting the New York County Medical Association concluded its labors for the present season. After the scientific exercises, the members adjourned to the supper-room below, where they made merry on strawberries and ice-cream, served in place of the ordinary collation, and were entertained with short congratulatory speeches by the President, Dr. McLeod, and others. Among the speakers were Dr. Truax and ex-Presidents Harrison and Shrady, and the latter, in his genial way, related a number of reminiscences of medical life in New York in former days. The Association still continues in a very gratifying condition of prosperity, and, notwithstanding the fact that an unusually large number of its members have been removed by death during the past year, it adjourns for the summer with 648 names on its roll, as against 531 at the same time last year.

At this June meeting the first paper of the evening was by Dr. Edward Sanders, on "Chronic Induration following Pelvic Cellulitis in the Female, and its Treatment by Galvanism." His observations were based on no less than 200 cases personally treated by himself, and without going into the somewhat vexed question as to the part played by peritonitis in the production of the condition referred to, he made a careful analysis of the cases and presented a most valuable aggregation of facts as the result of his practical experience. In the vast majority of his cases, the pelvic induration found to be present was the result of parturition at term, or of abortion, and, after having tried various other methods of treatment, he had found that galvanism was by far the most efficient and satisfactory in every way. In fact, he said, he had yet to meet the first uncomplicated case of the kind, without any concomitant disease of the ovaries or tubes, that could not be entirely cured by this agent.

The more recent cases required but a comparatively short time for cure, but in those of long standing, it was necessary to keep up the treatment for a considerable

period. While the pain and other symptomatic features were often relieved after a few applications, the lesions did not disappear, as a rule, until the method had been employed for some months. Dr. Sanders is very particular as to the exact dosage and regulation of the galvanic current, always making use of the milliampère-meter and the rheostat. He never resorts to puncture, believing this practice to be dangerous, as well as unnecessary. For the comfort of the patient he regards it desirable to have an electrode of large surface for application on the abdomen, and he usually employs a modified Apostoli electrode for this purpose. For the intra-vaginal electrode he uses a metallic ball, and sometimes one of clay. It is seldom or never necessary to use an intra-uterine electrode, as this is not only less efficient, but also much more painful, as a rule, than the intra-vaginal electrode. In general, he thinks a current of from 100 to 125 milliampères, maintained for about five minutes at a sitting, and repeated about twice a week, is that which will be found most satisfactory; though in exceptional instances he has employed a current of the strength of 200 milliampères. The battery, a Wait and Bartlett, which he habitually uses in his office, has sixty cells; but he stated that one of forty cells would answer every purpose.

The second paper of the evening was by Dr. T. H. Manley, who took for his subject "Resection as a Substitute for Primary Amputation." In it he made the somewhat startling claim that, in civil life, a primary amputation is never a justifiable amputation; and it was devoted to a strong and carefully prepared plea for conservatism in surgery. The plan of treatment which he advised, he said, was based on modern experience and teaching, and it included, in the first place, efficient asepsis or antisepsis; and, in the second place, proper conservation of the tissues. It should be the surgeon's endeavor to preserve all that had not been actually destroyed, and the method involved a thorough knowledge of modern osteoplasty. If seen early, the parts could be kept in an aseptic condition; but if septic phenomena had already made their appearance, suitable antiseptic measures were called for. Bichloride of mercury was undoubtedly the most efficient antiseptic agent at our command, but care should be taken not to use it in too great strength; a solution of the strength of 1 to from 5,000 to 10,000 being the most satisfactory.

Antisepsis, he believed, had been used too much by surgeons. When a strong bichloride solution was employed, he had frequently found that a useless stump was the result, on account of the extreme sensitiveness of the parts. Moreover, he had frequently seen insidious osteomyelitis develop in the case of perfectly healthy subjects, where there was nothing to account for this untoward result but the use of powerful antiseptics. Hence, he said, he employed no antisepsis whatever if a septic process had already commenced; making use of nothing but sterilized water.

Resection, Dr. Manley contended, must not be confounded with restitution of structure, although very much could be accomplished by osteoplasty. In the shafts of bones, the great obstacle to success in treatment was medullary intolerance, and hence the fastening together of fragments by pegs and wiring was apt to be followed by osteo-myelitis. The great reliance here, therefore, was to be placed on periostial osteoplasty. In his concluding remarks he said that in his paper he claimed nothing new in principle; all that he claimed was a new application of principles already well established. In primary amputations it was well known that a second operation, involving the amputation of the limb at a higher point, was often called for. By delay, however, we did not put our patient's life in any additional danger; and if we succeeded in saving the limb, there was certainly a great gain, since a natural limb, even though it were only fairly useful, was unquestionably much better than any kind of an artificial one. Finally, there was the medico-legal aspect of the question to be taken into consideration. It was now generally understood by the laity, as well as the profession, that limbs could often be saved by the resources of modern surgery, which formerly would have been sacrificed, and therefore, any surgeon performing an amputation was liable to be summoned to answer to the charge of having removed a limb unnecessarily.

There were present as guests Dr. Wm. C. Wile, of Danbury, Conn., Editor of the *New England Medical Monthly*, and Dr. Quimby, of Jersey City, and both these surgeons spoke in warm approbation of Dr. Manley's conservative views.

Before adjourning the Association by a unanimous vote determined to send to the Judicial Council of the American Medical Association a memorial, prepared by a committee of which Dr. Robert Hinman was chairman, in reference to the eligibility as officers and delegates of the National Association, of physicians from the State of New York who are not in accord with the Code of Ethics of the Association.

This year the Commencement of the College of Physicians and Surgeons was held in connection with that of Columbia College, with which it has recently been consolidated as the Medical Department of the institution. There were 130 graduates in medicine, and in the course of his address the President, Mr. Low, spoke of the significance which this happily consummated union had for the cause of medical education in this country.

P. B. P.

ASSOCIATION NEWS.

Committees on Railroad Surgeons and Incorporation.

At the late meeting in Washington the President announced as the committee:

On Railroad Surgeons.—Ala., J. Cochran, Mobile; Ark., L. P. Gibson, Little Rock; Cal., G. G. Tyrrell, Sacramento; Col., John Elsner, Denver; Conn., T. D. Crothers, Hartford; D.C., J. Ford Thompson, Washington; Del., R. G. Ellegood, Concord; Fla., J. D. Fernandez, Jacksonville; Ga., T. S. Powell, Atlanta; Ill., B. M. Griffin, Springfield; Ind., J. F. Hibberd, Richmond; Iowa, G. F. Jenkins, Keokuk; Kans., W. L. Schenck, Osage City; Ky., J. M. McCormack, Bowling Green; La., T. G. Richardson, New Orleans; Maine, A. Garce-

lon, Lewiston; Maryland, G. Lane Taneyhill, Baltimore; Mass., A. L. Norris, Cambridge; Mich., J. E. Emerson, Detroit; Minn., Perry H. Millard, St. Paul; Miss., B. A. Duncan, West Point; Mo., G. W. Broome, St. Louis; N. C., Thos. F. Wood, Wilmington; N. H., G. P. Conn, Concord; N. J., D. Benjamin, Camden; N. Y., E. D. Ferguson, Troy; N. Dak., G. McIntyre, Hillsboro; Ohio, S. S. Thorn, Toledo; Oregon, C. C. Strong, Portland; Pa., John B. Roberts, Philadelphia; R. I., W. R. White, Providence; S. C., W. Peyre Porcher, Charleston; Tenn., T. J. Happel, Nashville; Texas, D. R. Wallace, Waco; Vt., D. C. Hawley, Burlington; Va., Bedford Brown, Alexandria; Wash., C. L. Flannigan, Olympia; W. Va., G. A. Aschmen, Wheeling; Wis., Jas. T. Reeve, Appleton.

On Incorporation.—R. Harvey Reed, Mansfield, Ohio; J. F. Hibberd, Richmond, Ind.; Irving A. Watson, Concord, N. H.; N. S. Davis, Chicago, Ill.; W. B. Atkinson, Philadelphia; W. T. Briggs, Nashville, Tenn.: W. K. Sheddon, Williamsport, Tenn.

TREASURER'S REPORT.

DR. RICHARD J. DUNGLISON, Treasurer, in account with the American Medical Association, for Fiscal Year to April 30, 1891, inclusive.

Dr. 1890.		
May 24. To cash balance reported by Treasurer at Nashville meeting	$4,483.53	
May 24. To balance, office of publication, at end of fiscal year	666.93	
May 24. To dues collected at Nashville meeting $3,765.00, less exchange	3,758.00	
To balance of unexpended appropriation for stenographers	25.00	
1891.		
April 30. To dues collected to date	10,045.00	
April 30. To amount received at office of publication of Journal to end of its fiscal year	14,464.04	
		$33,438.50

Cr. 1890.		
June 2. By cash paid Dr. R. J. Dunglison, Treasurer, expenses of travel, etc., postage, telegrams and expressage	125.85	
June 4. By stamped envelopes	87.20	
June 5. By Dr. W. W. Potter, Chairman Section of Obstetrics, etc., expenses	10.25	
June 5. Dr. G. C. Savage, Chairman Finance Committee, Nashville meeting, rental and printing	273.60	
June 5. To C. F. Pollak, Index Clerk	10.00	
June 5. By dues refunded	15.00	
July 20. By Ward & Barnitz, printing	10.50	
July 20. By rental of P. O. box	3.00	
July 20. By stamped envelopes, expressage, telegrams, stationery, postage	38.06	
July 25. By Wm. F. Fell & Co., printing	8.00	
July 25. By Wm. F. Fell & Co., printing for Permanent Secretary	18.00	
July 25. By stamped envelopes	8.00	
August 9. By Dr. J. H. Musser, Chairman Section of Practice, expenses	19.00	
September 5. By stamped envelopes, stationery, postage, duty on book	52.30	
October 24. By Wm. F. Fell & Co., printing for Permanent Secretary	8.50	
October 30. By Ward & Barnitz, printing	8.25	
November 15. To postage, stamped envelopes, stationery, collector's commissions, expressage	33.02	
November 15. By rental of P. O. Box	3.00	
November 15. By Dr. P. O. Hooper, President of Board, draft on Treasurer, for expenses of Trustees of Journal to meeting of Board at Washington	337.50	
1891.		
January 19. By Ward & Barnitz, printing	7.50	
January 19. By rental of P. O. box	3.00	
April 16. By Wm. F. Fell & Co., printing for Permanent Secretary	21.75	
April 25. By Dr. W. B. Atkinson, Permanent Secretary, postage, telegrams, stationery, expressage, travelling expenses to date	146.35	
April 27. By cash City Trust, Safe Deposit and Surety Co., premium for bond of Treasurer, as per resolution of Board of Trustees	50.00	
April 29. By postage, stamped envelopes, stationery, collector's commission	39.59	
April 29. By Ward & Barnitz, printing	5.85	
April 29. By rental of P. O. box	3.00	
April 29. By Drexel & Co., collection expenses on drafts	111.70	
April 29. By Farmers & Mechanics National Bank, exchange on checks deposited during fiscal year	24.15	
April 30. By Ward & Barnitz, printing	13.00	
April 30. By paid office of publication of Journal since last annual meeting	8,151.50	
April 30. By expended by office of publication of Journal during its fiscal year	14,634.57	
April 30. By balance in treasury	$8,664.81	
April 30. By balance in office of publication of Journal at end of its fiscal year	$762.40	9,427.21
		$33,438.50

WASHINGTON, May 5, 1891.

This certifies that we have examined the accounts and vouchers of R. J. Dunglison, Treasurer of the American Medical Association, and found the same properly vouched and accurately cast, and that the balance in the treasury is $9,427.21.

ALONZO GARCELON,
JOHN V. SHOEMAKER,
D. E. NELSON,
Auditing Committee.

MISCELLANY.

CHANGE OF ADDRESS.—Prof. John B. Hamilton has removed from Washington, D. C., to the Sherman House, Chicago.

REMOVAL.—Dr. E. A. Waggoner from Carrollton, Mo., to Burlington, Iowa.

THE SECOND TRIENNIAL SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.—*Circular No. 1.*—The Committee of Arrangements takes great pleasure in announcing to the members and invited guests that the arrangements are sufficiently advanced to assure the success of the Second Triennial Session of the Congress of American Physicians and Surgeons, which will be held in this city during the 22d, 23d, 24th, and 25th of September, 1891.

A number of distinguished physicians and surgeons from abroad have accepted the invitation to attend, among whom may be named Mr. Thomas Bryant, Mr. B. E. Broadhurst, Mr. A. E. Durham, Mr. Reginald Harrison, Surgeon General Sir W. E. McKennin, Mr. U. Pritchard, Mr. F. Treves, Sir William MacCormac, and Dr. James G. Glover and William M. Ord, of London, England; Drs. McCall Anderson and W. T. Gairdner, of Glasgow; Mr. E. H. Bennett and Professor Cunningham, of Dublin; Professor John Chiene and Dr. J. Battey Tuke, of Edinburg; Professor H. Krause and Dr. F. Beeby, of Berlin; Professor Curschmann, of Leipzig; Professor Hoffa, of Wurzburg; Professor Kuhne, of Heidelburg; M. Emil Juval, M. E. Landolt, and Dr. Pozzi, of Paris; Dr. A. Musso, of Turin; Dr. Von Mozengeil, of Bonn; Dr. Lowenber, of Paris; and Dr. Rafail Lavista, of Mexico.

The sessions of the Congress will be held in the Main Hall of the Grand Army Building, 1412 and 1414 Pennsylvania Avenue, from 3 to 6 P.M., daily.

The President's Address will be delivered in the Lecture Hall of the National Museum, Wednesday, September 23, at 8 P.M., followed by the Reception of the President, from 9:30 till 12. Order of Executive Committee. The Army Medical Museum will be open the same evening.

The sessions of the Societies will be held according to

the programmes of each, respectively, in the places as follows:

American Surgical Association, Main Hall, Grand Army Building, 1412 and 1414 Pa. Ave.

Association of American Physicians, Hall No. 1, Grand Army Building, 1412 and 1414 Pa. Ave.

American Climatological Association, Hall No. 2, Grand Army Building, 141 and 1414 Pa. Ave.

American Gynecological Society, Lecture Hall, Columbian University, 15th and H Sts. N. W.

American Laryngological Association, Parlor A, Arlington Hotel.

American Neurological Association, Parlors 182 and 183, Arlington Hotel.

American Orthopædic Association, New Reception Room, Arlington Hotel.

American Otological Society, Ladies Parlor, No. 1, Arlington Hotel.

American Ophthalmological Society, Ladies Parlor, No. 2, Arlington Hotel.

American Physiological Society, Parlor 181, Arlington Hotel.

The officers of the American Dermatological Association and the American Association of Andrology and Syphilology have made their arrangements with the Shoreham for places of meeting.

Office of Registration, Parlors 1 and 2, Arlington Hotel. From this office the mail of members and guests will be distributed, and the city residence of each member or guest can be ascertained.

The Association of American Anatomists will meet in this city during the sessions of the Congress, and will occupy Hall No. 3, Grand Army Building. The American Pediatric Society will meet here September 23, and 24, in the Lecture Hall of Columbian University, 15th and H Streets, N. W.

The Congress will be composed of the members of the societies and invited guests.

A registration fee of five dollars will be required of every member of the constituent societies who may register; invited guests will not pay the fee. Order of Executive Committee.

Participating societies can "accredit visitors to the Congress, who shall pay the registration fee, but shall not be privileged to participate in the deliberations of the Congress." Order of executive Committee.

A copy of the transaction of the Congress will be sent to each person who may register.

Only those who may register, invited guests, and ladies accompanying them, will be admitted to the Reception of the President.

Secretaries of constituent societies are requested to supply this Committee with the names and addresses of "accredited visitors."

The evenings of Tuesday, September 22, and Thursday, September 24, are left to the societies.

Members of the American Surgical Association and of the Association of American Physicians will conjointly entertain their foreign guests at dinner at the Arlington Hotel, Thursday, September 24, at 8 P.M.

The American Gynecological Society has also arranged for a dinner at the Arlington Hotel, Thursday evening, September 24. The American Pædiatric Society give a dinner September 24.

Other societies that intend to entertain their foreign guests are requested to communicate with this Committee.

Arrangements are in progress to secure reduction of railway fares. As soon as completed, the information will be communicated to each member and "accredited visitor."

The Arlington Hotel offers accommodations at the rate of $4 per day, and the Hotel Arno offers rates "on the American plan at $3 and $4 per day, on the European plan, $1 each per day. Exclusive use of bath, $1 extra."

A blank certificate of registration will be sent to each member and "accredited visitor." The Committee requests each person receiving such certificate to fill the blanks and return it, with the fee, to Dr. John S. Billings, Treasurer of the Congress.

The American Pomological Society, and perhaps other societies, will meet in this city September 22–25. The Committee therefore suggest to the members an early arrangement for hotel accommodations.

Inquiries relating to railway fares must be addressed to Dr. S. S. Adams, 1632 K Street.

A complete roster of membership of the Congress has been prepared, with post-office address and society to which each member belongs.

The Committee will take pleasure in answering any inquiry relating to the local arrangements of the Congress.

SAMUEL C. BUSEY, M.D., *Chairman.*
1545 I Street N. W.

John S. Billings, M.D., Army Medical Museum; W. W. Johnston, M.D., 1603 K. St. N. W., Washington, D. C.; R. T. Edes, M.D., 1214 18th St. N. W., Washington, D. C.; S. O. Richey, M.D., 732 17th St. N. W., Washington, D. C.; J. Taber Johnson, M.D., 1728 K St. N. W., Washington, D. C.; D. Forest Willard, M.D., 1818 Chestnut St., Philadelphia, Pa.; I. E. Atkinson, M.D., 605 Cathedral St., Baltimore, Md.; C. F. Bevan, M.D., 807 Cathedral St., Baltimore, Md.; Samuel Johnson, M.D., 204 Monument St., Baltimore, Md.; Samuel Theobald, M.D., 304 Monument St., Baltimore, Md.; H. Newell Martin, M.D., Johns Hopkins Hospital, Baltimore. Md.

Washington, D. C., June 24, 1891.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from June 20, 1891, to June 26, 1891.

Major Julius K. Patzki, Surgeon, leave of absence on surgeon's certificate of disability, granted in S. O. 99, May 1, 1891, from this office, is extended two months on surgeon's certificate of disability. By direction of the Acting Secretary of War. Par. 15, S. O. 142, A. G. O., June 22, 1891.

Capt. William C. Borden, Asst. Surgeon, will, upon the final abandonment of Ft. Davis, Texas, report in person to the commanding officer, Jackson Bks., La., for duty at that post. By direction of the Secretary of War. Par. 4, S. O. 139, A. G. O., June 18, 1891.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending June 27, 1891.

Surgeon J. H. Hall, from Naval Station, New London, and to Naval Hospital, Chelsea, Mass.

P. A. Surgeon L. W. Atlee, from nautical school ship "Saratoga," and wait orders.

P. A. Surgeon J. M. Steele, ordered to nautical school ship "Saratoga."

Asst. Surgeon G. A. Lung, ordered to Naval Station, New London, Conn.

Asst. Surgeon J. E. Page, from Naval Hospital, Mare Island, and to the "Independence."

Asst. Surgeon M. R. Pigott, from U. S. receiving ship "Independence," and to Naval Hospital, Mare Island, Cal.

Asst. Surgeon J. G. Field, detached from U. S. S. "Omaha," and granted three months' leave of absence.

Frederick Gratton Brathwaite, of Stamford, Conn., commissioned an Asst. Surgeon in the Navy June 22, 1891.